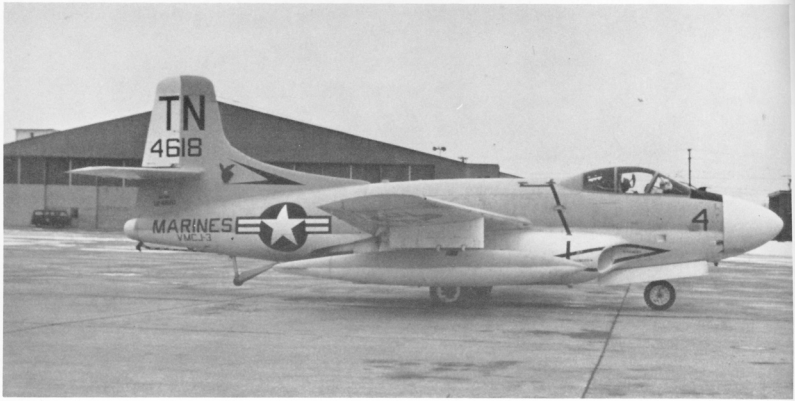
NAVAL FIGHTERS NUMBER FOUR

DOUGLAS F3D Skyknight

INCLUDES DATA ON THE SWEPT-WINGED F3D-3 AND THE F6D-1 MISSILEER. BY STEVE GINTER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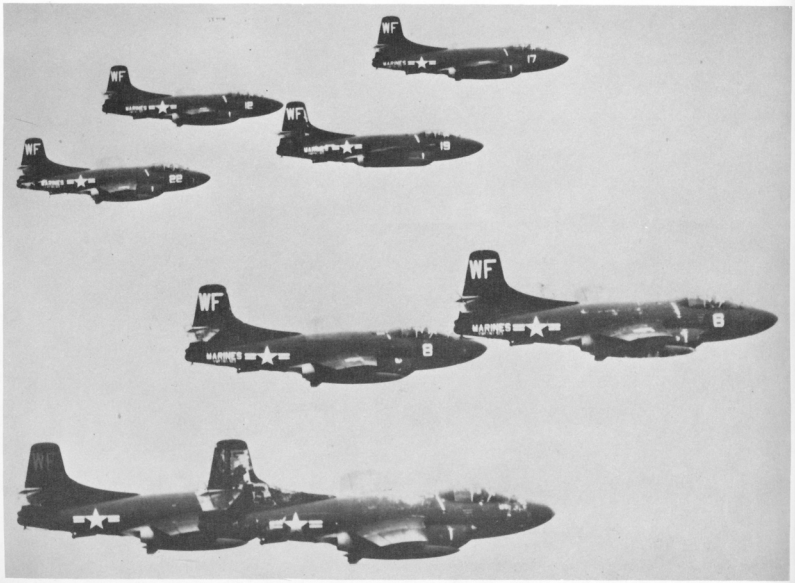
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INTRODUCTION

Anyone having photos or other information on this aircraft or other 50's era naval aircraft, may submit them for possible inclusion in future issues. Any material submitted will become the property of NAVAL FIGHTERS unless prior arrangement is made. Individuals are responsible for security clearance of any material before submission.

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FRONT COVER

VMF(N)-531 F3D-2 125835 from MCAS Cherry Point in flight in the overall navy blue color scheme with white markings. (via Holmberg)

PHOTOS AT LEFT: TOP — EF-10B, 124618, from VMCJ-3. This is the last operational Marine Skynight, which was flown to the Marine Corps Museum by Col. Davis. Photo via Picciani Aircraft Slides. Playboy bunny is olive green and check, mark is black. BELOW — Flight of eight VMF(N)513 Skynights, during Korean War period. Lower two aircraft are in the well worn black scheme with red codes that was in use over Korea. The other six aircraft are in the standard blue scheme with white codes. Douglas photo via Harry Gann.

PHOTO BELOW — XF3D-1 on a test flight over the Mojave desert. USN photo.

BACKGROUND

June 1970 marked the end of a two decade love affair between the Douglas Skynight and the U.S. Navy. The site was Marine Corps Air Station El Toro, California. El Toro had been the home of the Marines first Skynight squadron, VMF(AW)542. After a pre-dawn flight line ceremony, EF-10B 124618 took off from El Toro for the last time. The plane was on its way to Quantico, Virginia, home of the Marine Corps Museum. The Skynight was assigned to Marine Composite Reconnaissance Squadron Three (VMCJ-3). VMCJ-3 had flown the F3D-2Q (EF-10B) Skynight since its inception on Dec. 1 1955, when VMC-3 and VMJ-3 were merged. The pilot was Colonel O. R. Davis, commanding officer of Marine Aircraft Group (MAG-33). Col. Davis and the Skynight (nicknamed "Willy the Whale") were old friends. On the night of Nov. 8 1952, a young Capt. Davis made history with "Willy", when he intercepted and destroyed a Russian made MIG-15. The kill was made at 12,000 ft., at 0136 hours and with an expenditure of only 20 rounds of 20mm ammunition. Although Capt. Davis's kill was the first nighttime MIG kill, the first jet versus jet kill at night occurred on Nov. 3, 1952. This F3D-2 was piloted by Major William T. Stratton Jr., with Master Sergeant Hans Hoglind as the radar operator. The victim was a Russian made YAK-15.

The success of VMF(N)513 in the skies of Korea, was due to the engineering genius of Douglas's Ed Heinemann and his staff. Although by todays standards the Skynight looks like a straightforward mundane aircraft, it was a real accomplishment for Douglas. It was built to BurAir standards which were thought by many manufacturers to be an impossibility at the time.

Late in 1944, there was a great concern in the intelligence community that Japan would be putting German jet engines to use in high speed bombers. Since such a craft would be operated in the 500mph range, a replacement for the F7F Tigercat just entering service would be needed to protect the fleet at night.

In Aug. 1945 BurAir posted its requirements for a carrier-based night-fighter plane. The specification called for an allweather fighter with 500mph performance at 40,000 ft. and the ability to detect enemy aircraft at ranges up to 125 miles. The state-of-the-art in radar technology was such that a set meeting this requirement would require an additional crewman to operate it.

During World War Two radar literally blossomed on aircraft. German aircraft started growing whiskers, stingers and Christmas trees. All these strange shapes, while interesting to look at, caused severe aerodynamic penalties. American aircraft stayed away from these antenna arrays as it was soon learned that the metal paraboloid or "dish" antenna provided the same constant phase surface. Dish antennas also offered reduced beam angles over the broadside arrays. However the smaller the beam angle the larger the dish, because the beam angle varies inversely to the diameter of the dish.

1945 radar technology dictated an exceptionally large dish be used to acquire aircraft at the specified 125 mile range. With this large dish came a large frontal area and the corresponding drag penalties that were imposed on the aircraft designer. In addition to this the weight of the radar sets were enormous. The Westinghouse APQ-35 set installed in the early F3Ds had about 300 vacuum tubes as solid state hardware was just over the horizon. To these difficulties were added the other weight problems associated with an all-weather fighter; a high capacity power source supplying energy not only to the radar but also to the sophisticated navigational equipment, which permitted low altitude zero visibility approaches and included an indent system to signal friendly aircraft and ground installations. Deicing, cabin pressurization, temperature and humidity control devices added even more weight to the design.

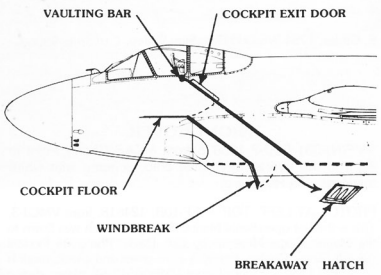
In addition to all of the problems the aircraft designer had to resolve, came the realization that radar development was advancing far faster than airframe development. What this meant was that a whole new radar could be designed, built and tested long before an aircraft came to futurity. A designer of such an aircraft would have to remember to leave room for such adaptability in his design.

After receiving the proposal, four companies bid on the specifications; Douglas, Curtiss, Grumman and Fleetwing. Preliminary designs started in Oct. 1945 and by the mock-up board inspection in April 1946 only Douglas was awarded a letter of intent for three experimental aircraft and a static test article.

By the time the first prototype was trucked from El Segundo to Murdoc Dry Lake (Edwards AFB), its design was refined into the bulbous shape which gave rise to the nickname "Willy the Whale". The radar nose was unusually wide due to the large radar dish and the side by side seating of the crew over the four 20mm cannons. The rest of the fuselage was of a conventional shape with a tail section similar to that of the Skyraider and Skystreak. Speed brakes of the type used on the Skyraider were also installed. The engines were mounted in semi-buried pods which occupied the center portion of the lower fuselage under the mid-mounted straight wing. Fuel cells were located above the engines in the fuselage. Landing gear was of the tricycle type with the main gear retracting into the inner wing panels. An auxiliary tailwheel was also added as a precaution against airframe damage at touchdown.

The most unusual feature of the Skynight design was the solution to the bailout problem. Normal bailout procedure meant almost certain injury and the prospect of installing ejection seats was prohibitive on both the cost and weight side of the coin. The final solution was to install an escape-slide. The escape sequence was activated by pulling a lever which would jettison the aft portion of the escape door and trigger the forward half to act as a windbreak. The crew would then pivot in their seats, grasp the vaulting bar atop the shoot and egress feet first out the bottom of the plane. After leaving the aircraft the crewmen had to wait five seconds before pulling the ripcord. Before the F3D entered squadron service, extensive tests were conducted by the Navy which verified the safety of the system.

ESCAPE – SLIDE



The first of three XF3D-1s took to the air on March 23rd, 1948, with pilot Russ Thaw. The second XF3D-1 first flew on June 6th, 1948, followed by the third on Oct. 7th, 1948. Flight tests proved favorable and on May 11, 1948, a production contract for the F3D-1 was received. The major difference between the XF3D-1 and the F3D-1 were in the engines. The prototypes were fitted with the Westinghouse J34-WE-22 engines of 3000 lb. thrust while the F3D-1 used the J34-WE-38 of 3250 lb. thrust.

While the XF3Ds were at Murdoc, they were tested by the Air Force, and the discussions were made to equip the Skynight with afterburners to meet the Air Force specifications. However, the Air Force decided to live with the F-94 and develop the F-89 Scorpion.

Meanwhile in Oct. 1948, Naval Air Test Center (NATC) Paxtent River, Maryland, and MCAS El Toro were conducting simulated night interceptions in which the XF3D-1 repeatedly intercepted and destroyed single-seat jet fighters above 40,000 ft. These Skynights were equipped with SCR-720 radar and were able to acquire targets up to 85 miles away. A change to the APQ-35 radar system in the third XF3D-1 enabled the Skynight to meet the contract specification for acquisition of aircraft at the 125 mile range.

The first production F3D-1 took to the air on Feb. 13th, 1950 and was accepted into the Navy inventory in Aug. of that year. On Dec. 5, 1950, VC-3 of Moffett Field, Calif., became the first Navy squadron to receive the F3D-1. Cdr. R.E. Harmer took delivery of the Skynight from the Navy pilot at El Segundo, LtCdr. D. F. Walton. The day after its arrival at Moffett, the F3D-1 gave seven orientation flights to officers of VC-3 with Douglas test pilot LaVerne Brown at the controls. Shortly after deliveries to VC-3 began, F3D-1 Skynights were delivered to VMF(N)542 (El Toro), NATC and Point Mugu, Calif.

PHOTOS: TOP — XF3D-1, 121457, with test probe on wing tip. Compare this photo with the one at the bottom of this page. Note that the only differences between the XF3D-1 and the F3D-1 were in the size of the engine nacelles and the much improved tail skid. Aircraft is overall blue with white codes and light grey main wheels. R. Besecker photo. RIGHT — Early F3D-1 on 5 Sept. 1950, with speed brakes extended. Note stenciling on upper fuselage and wings. National Archives photo. BOTTOM — F3D-1, 123762, fresh from the factory. R. Besecker photo.

OTHER BOOKS IN THIS SERIES

#1 Grumman F11 Tiger. $3.95

#2 McDonnell F2H Banshee. $7.95

#3 McDonnell FH-1 Phantom. $4.25

DESIGNATIONS

In 1962, under the tri-service redesignation system dictated by the Department of Defence, the Skynight changed from F3D to F10D.

F3D-1 (F-10A)

Twenty eight F3D-1s (123741-123768) were built at El Segundo under a $50,000,000 contract signed in 1948. Externally the F3D-1 was identical to the XF3D-1, except for the installation of larger engines. On delivery the intended engines were still not available, so the 3,000 lb. units as used in the XF3D-1 were installed in the first few aircraft. The engines were later changed to the 3250 lb. J34-WE-34 engines when they became available. Other changes over the XF3D-1 was the installation of additional electronic gear and other revised internal equipment. Originally XF3D-1s were fitted with metal nose cones, which were changed to a plastic-glass type when radar was installed. All F3D-1s and subsequent aircraft used the fiberglass nose cones.

F3D-1M (MF-10A)

A number of F3D-1s along with XF3D-1 121458 were modified to test Sparrow guided missile systems. Each of these planes were fitted with four external stores pylons beneath the outer wing panels.

F3D-2 (F-10B)

Preliminary specifications for the F3D-2 were released by the Navy on May 23, 1949, with the letter of intent issued in Oct. 1949. The initial purpose of ordering the dash 2 was to increase the Skynights performance through the use of larger engines. However, when the Dash 2 took to the air on Feb. 14, 1951, it was powered by two J34-WE-36 engines as the intended J46 of 4,600 lbs. thrust were still not available. All dash 2s were completed with the 3,400 lb. thrust J34 as the J46 never did materialize. Even though the smaller engines were used the J46s larger engine nacelles were retained. Other changes dictated by service testing of the F3D-1 was the addition of a General Electric G-3 autopilot, wing spoilers for increased rate-of-roll, improved models of radar intercept, tail warning, and gun targeting radar, improved air conditioning and a thicker armored windshield. A total of 237 F3D-2s (124595 to 124664 — 125783 to 125882 — 127019 to 127085) were built. The last F3D-2 was completed on March 23, 1952.

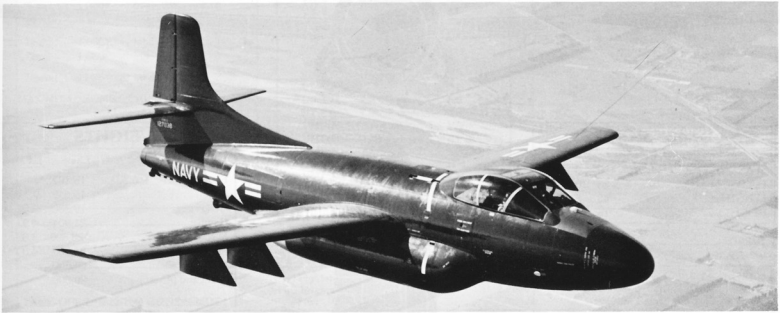
F3D-2B

Only one aircraft carried this designation. The aircraft was configured for special armament tests in 1952, although the details of this modification and tests are unknown.

F3D-2M (MF-10B)

Sixteen dash 2s were converted to missile aircraft which could field the Sparrow missiles. These aircraft encorporated enlarged nose cones and four hardpoints for the missiles. The four 20 mm cannons were also removed as Navy planners felt that future fighters would rely on missiles alone.

PHOTO BELOW — Believed to be the conversion prototype for the 16 F3D-2M Skynights, aircraft still carries the F3D-2 designation above 127038. Aircraft blue with flat black anti-glare panel and white codes. Note lengthened nose and Sparrow hardpoints on wings. Douglas photo.



F3D-2Q (EF-10B)

In 1955 a F3D-2 was modified into a test bed for an electronic countermeasures aircraft. Eventually 35 aircraft would be modified for the Marines to use in the ECM role. Once stripped of its armament, save the cannon for defence, the "whales" portly shape provided a flying garage to store all those little black boxes in. Along with its large internal volume, the Skynights rock-steady flying qualities made it an ideal choice for ECM duties as was proved through its use in Vietnam.

F3D-2T

Five F3D-2s were modified into night fighter trainers.

F3D-2T2 (TF-10B)

Describes 55 F3D-2s that were converted to radar-operator trainers.

F3D-3

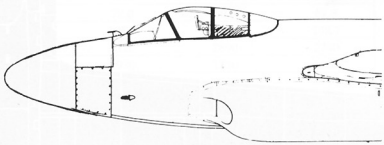
Projected development of the Skynight which was to use two J46-WE-3s and have swept wings. A detailed description will be discussed later in this book.

F6D-1 MISSILEAR

Proposed aircraft based on Skynight principles; to be described later.

PHOTOS AT LEFT: TOP — F3D-1M, 125751, in the early 1960s. Note well worn blue color scheme with white codes and pilot character riding a rocket or jet engine. Photo by Harry Gann. BOTTOM — F3D-2B, 127044, of VX-5. Photo by Balogh via Menard.

F3D-2M NOSE



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AMERICAN AVIATION HISTORICAL SOCIETY
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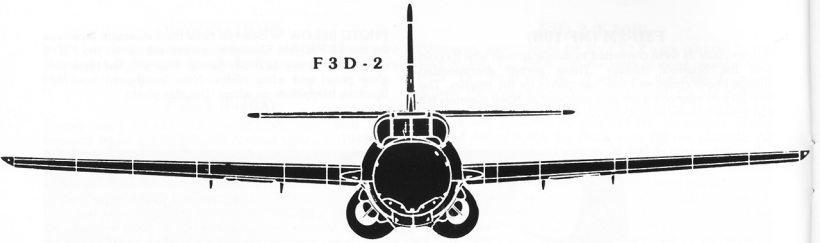
F3D-2



1/72 SCALE

DIMENSIONS

SPAN	50′ 0″
FOLDED SPAN	26′ 10″
LENGTH	45′ 5″
HEIGHT	16′ 1″
HEIGHT*	16′ 6″
TREAD	10′ 6″
WING AREA	400 sq. ft.
M.A.C.	8′ 4″

*Wings folded

WEIGHTS

Loadings	Lbs.	L.F.
Empty (A)	15,107	
Basic	15,649	
Design	19,700	5.5
Combat	21,904	4.9
Max. T.O. (Field)	*28,800	3.8
Max.T.O. (Catapult)	27,800	4.0
Max.Land (Field)	24,500	
Max.Land (Arrest.)	20,000	

*Technical Order No. 46-53

ELECTRONICS

UHF RADIO	AN/ARC-27
HOMING REC.	AN/ARR-2A
D.F. EQUIPMENT	AN/ARN-6
INTERPHONE	AN/AIC-4
RADIO ALTIMETER	AN/APN-1
RADAR	AN/APQ-35
IFF EQUIPMENT	AN/APX-6
DIR.FINDER GROUP	AN/ARA-25

FUEL AND OIL

Gals.	No. Tanks	Location
650	1	*Fus.Fwd.
290	1	*Fus.Ctr.
410	1	*Fus.Aft.
150	2	Wing,Drop

FUEL SPEC. MIL-F-5572
MIL-F-5624B
*SELF-SEALING TANKS

OIL

CAPACITY (Gals.) 4.0
GRADE 1010
SPEC. MIL-O-6081

ORDNANCE

4-20mm guns with 800 rounds of ammunition

Mk.8 Mod.12 Gunsight

BOMBS AND ROCKETS

Type	Size	Location	No.
Bomb	2,000#	Inbd. Wing	2
Bomb	1,000#	Inbd. Wing	2
Bomb	500#	Inbd. Wing	2
Bomb	1,660#	Inbd. Wing	1
Bomb	1,050#	Inbd. Wing	1
Rocket	11.75"	Inbd. Wing	2

MAXIMUM BOMB CAPACITY 4000 LBS.

F3D-2M

Missile Sparrow	1	Inbd. Wing	2
		Outbd. Wg.	2

F3D SQUADRON TAIL CODES

DOES NOT INCLUDE SERVICE OR UTILITY SQUADRONS

UNIT	TAIL CODE
VC-3	NP
VC-4	NA/C
VC-33	SS
VX-3	XC
VX-4	XF
VX-5	XE
VFAW-3/FAWTUPAC	PA
VF-11	T
VF-14	T/ATG
FAWTULANT	LP/HG
VF-101	AD
VF-121	NJ
VT-86	4B
VMF(N)-513/(AW)	WF
VMF(N)-531/(AW)	LT/EC
VMF(N)-542/(AW)	LP/BP
VMCJ-1	RM
VMCJ-2	CY
VMC-3/VMCJ-3	TN

POWER PLANT

No. & MODEL . . . . . (2) J34-WE-36
MANUFACTURER . . . . . Westinghouse
TYPE. . . . . 11 Stg. Axial Compr. 2 Stg. Turbine
ENGINE SPEC. WAGT-24C4E-2F
LENGTH . . . . . 111 in.
DIAMETER . . . . . 27 in.
TAIL PIPE NOZZLE . . . . . Fixed Area

RATINGS

STATIC SEA LEVEL STD. CONDITION

	Thrust-Lb.	RPM
T.O.	3400	12,500
MIL.	3400	12,500
NORM.	3000	11,930

F3D-2

PERFORMANCE SUMMARY

TAKE-OFF LOADING CONDITION			(1) Fighter Full Internal Fuel	(4) Fighter) 2-150 Gal.Ext. Tanks	(5) Attack 2-2000 lb. Bombs	(6) Attack 1-150 Gal.Ext.Tk 1-1660 lb. Bomb	(7) Attack 1-150 Gal.Ext.Tk 1-1050 lb. Bomb
TAKE-OFF WEIGHT		lb.	25,414	27,681	28,800	27,724	27,114
Fuel (JP-3)		lb.	8775	10,725	8060 (E)	9750	9750
Payload		lb.	544	514	4272	1932	1322
Wing loading		lb./sq.ft.	63.5	69.2	72.0	69.3	67.8
Stall speed — power off		kn.	99.1	103.2	105.3	103.8	102.7
Take-off run at S.L. — calm		ft.	2280	2640	3120	2890	2740
Take-off run at S.L. 25 kn. wind		ft.	1350	1720	1930	1750	1650
Take-off to clear 50 ft. — calm		ft.	3750	4680	5180	4760	4510
Max. speed/altitude	A	kn./ft.	452/18,500	419/17,000	423/16,000	400/17,500	418/16,750
Rate of climb at S.L.	B	fmp	3700	3180	3040	2900	3160
Time: S.L. to 2,000 ft.	B	min	7.6	9.6	9.4	10.5	8.8
Time: S.L. to 30,000 ft.	B	min	14.6	19.5	20.4	20.9	18.8
Service ceiling (100 fpm)	B	ft.	39,900	35,900	35,300	33.800	36,300
Combat range		n.mi.	1185	1338	793	1040	1184
Average cruising speed		kn.	400	392	388	384	391
Cruising altitude(s)		ft.	37,400/43,200	35,000/41,400	32,500/37,400	31,800/38,800	34,300/42,300
Combat radius		n.mi.	499	590	300	432	453
Average cruising speed		kn.	402	392	391	387	394

COMBAT LOADING CONDITION		(2) Combat-No Ext.Ld.60% Fuel
COMBAT WEIGHT	lb.	21,904
Engine power		MILITARY
Fuel	lb.	5265
Combat speed/combat altitude	kn.ft.	448/35,000
Rate of climb/combat altitude	fpm/ft.	940/35,000
Combat ceiling (500 fpm)	ft.	39,400
Rate of climb at S.L.	fpm	4430
Max. speed at S.L.	kn.	477
Max. speed/altitude	kn./ft.	481/10,000

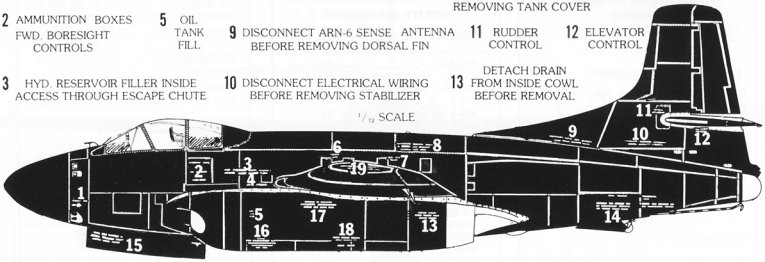
LANDING WEIGHT	lb.	(3) 17,834
Fuel	lb.	1194
Stall speed — power-off	kn.	82.9
Stall speed — with approach power	kn	81.5

NOTES

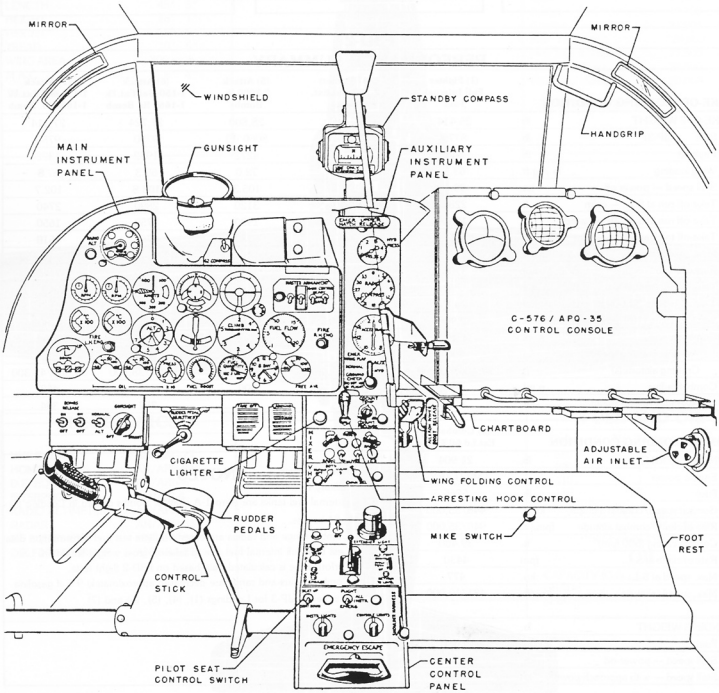
(A) Normal power
(B) Military Power
(C) External fuel tanks are Aero 1-A shapes. Bombs carried in Loading (5) are Mk 84 bombs.
(D) Combat range and radius are based on flight test fuel consumption data.
(E) Less than full internal fuel due to take-off gross weight limitation
(F) Performance is calculated data based on F3D-2 flight tests.
(G) Combat radius and range are decreased approximately 9% if gasoline is used in lieu of JP-3 for Loadings (1), (4), (5), (6) and (7).

1 STATIC VENT
2 AMMUNITION BOXES FWD. BORESIGHT CONTROLS
3 HYD. RESERVOIR FILLER INSIDE ACCESS THROUGH ESCAPE CHUTE
4 AFT BORESIGHT
5 OIL TANK FILL
6 HOIST HERE
7 JURY STRUT SOCKET
8 DISCONNECT ELECTRICAL WIRE TO SECTION LIGHT BEFORE REMOVING TANK COVER
9 DISCONNECT ARN-6 SENSE ANTENNA BEFORE REMOVING DORSAL FIN
10 DISCONNECT ELECTRICAL WIRING BEFORE REMOVING STABILIZER
11 RUDDER CONTROL
12 ELEVATOR CONTROL
13 DETACH DRAIN FROM INSIDE COWL BEFORE REMOVAL

1/72 SCALE



COCKPIT ARRANGEMENT – FORWARD



14 TRAIL BUMPER

INFLATE TO 235-250 P.S.I. IN COMPRESSED POSITION OR 35-45 P.S.I. EXTENDED

ARRESTING HOOK

INFLATE TO 400-435 P.S.I. IN COMPRESSED POSITION

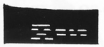
15 JACK PAD STOWAGE & RADOME ACCESS CRANE INSIDE WHEEL WELL

16 ENGINE ACCESSORIES OIL TANK DRAINS & FUEL-FLOW PUMP INSIDE

17 AILERON & SECONDARY CONTROLS ACCESS THROUGH DOORS IN ENGINE RAMP

18 DUMP CAN MANUAL DRAIN INSIDE SPARE PARTS

19 DISCONNECT ELECTRICAL WIRING BEFORE REMOVING WING TIP

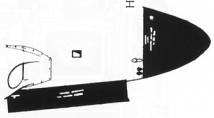


WING PYLON

HOISTING AND SWAY BRACE ACCESS DOOR

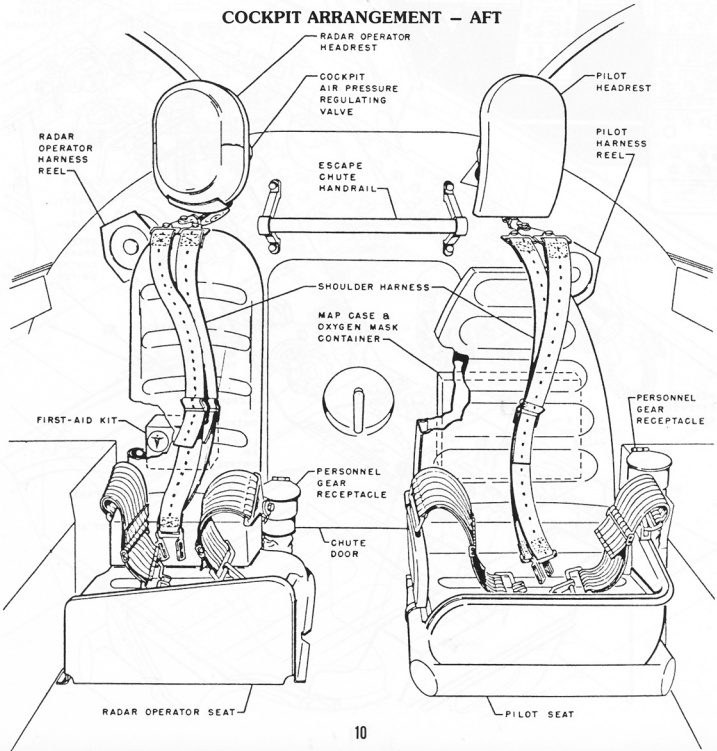
TIGHTEN SWAY BRACE FINGER TIGHT ONLY

CAUTION GLASS HANDLE WITH CARE DO NOT PAINT



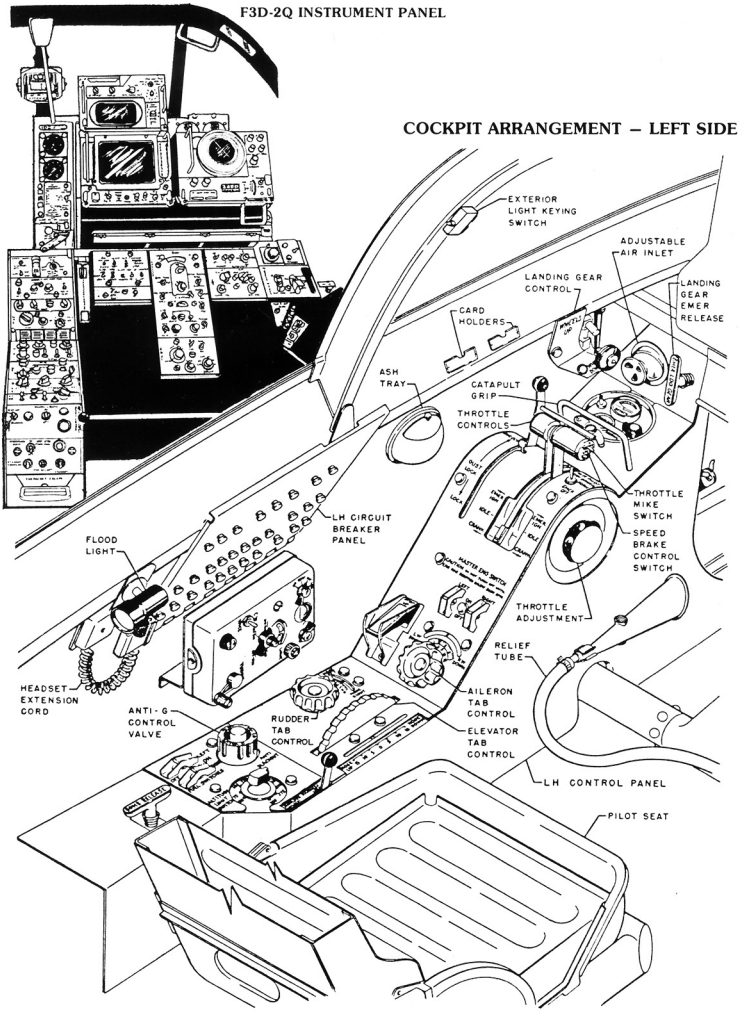
EMERGENCY ESCAPE AIR BOTTLES INSIDE

COCKPIT ARRANGEMENT – AFT



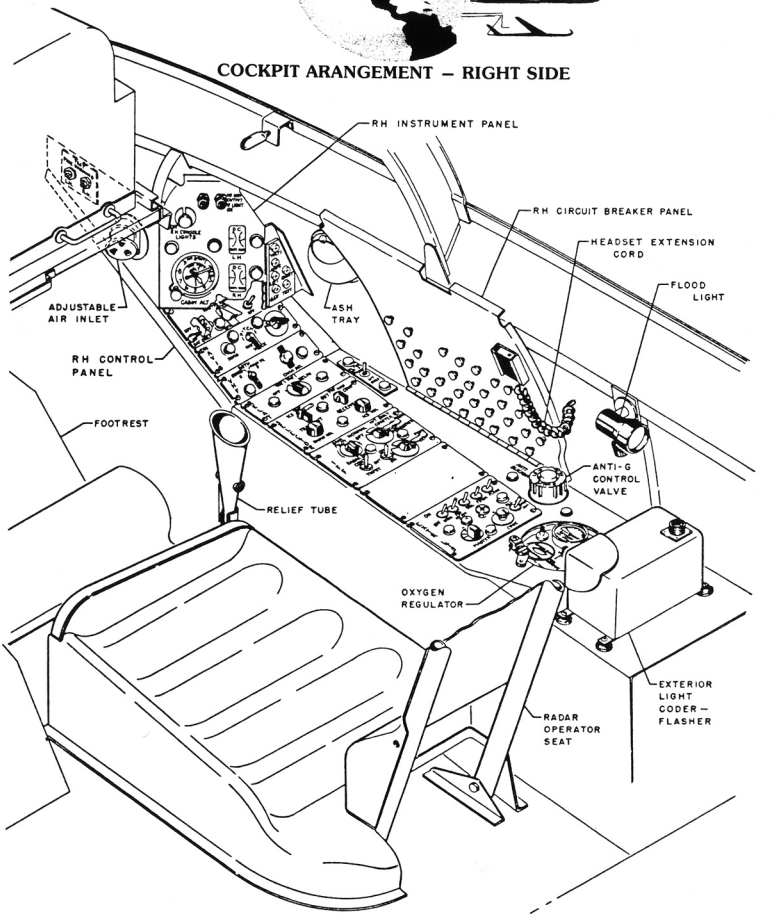
F3D-2Q INSTRUMENT PANEL

COCKPIT ARRANGEMENT – LEFT SIDE



DOUGLAS

COCKPIT ARANGEMENT – RIGHT SIDE



ACCELERATED CARRIER SUITABILITY TESTS

Very early in the life of every Naval aircraft the opportunity arises to test its mettle. This testing is always provided with loving care and efficiency by the experts stationed at the Naval Air Test Center, Patuxent River, Maryland. Of the testing done at NATC, none is more important in shaping the career of an aircraft than the carrier suitability tests. As we shall see, these tests were crucial in deciding that the U.S.M.C. would be the primary user of the Skynight.

On 2 March 1949, a test directive was issued for the XF3D-1 to commence carrier suitability trials. XF3D-1, Bu.No. 121458, was received by Flight Test for these trials on 4 August 1949. Before the tests began, the prototypes engines were overhauled and structural modifications for the carrier trials were completed. The tests then commenced in earnest on 4 October 1949, and were completed on 1 February 1950.

It must be noted that these tests were conducted on a prototype to ascertain its carrier suitability, and to reveal deficiencies prior to the advent of the model F3D-1.

The following conclusions were drawn from the carrier suitability tests:

a. The airplane is only marginally acceptable for daylight catapult launching operations at the gross weights tested because of the discrepancies listed below:

(1) The large change in angle of attack from the airplane static position to the attitude required for flight, which must be obtained in the deck space between the end of the catapult power stroke and the forward edge of the flight deck.

(2) The excessive time required to spot and tension the airplane on the catapult.

b. The airplane is not acceptable for night catapult launching operations because adequate reference is not available to safely rotate the airplane to the attitude required for flight.

c. The close proximity of the catapult hooks and holdback fitting to the jet engine air intake and exhaust makes it difficult to attach the bridle and holdback assembly.

d. The airplane is not acceptable for arrested landing operations at the gross weights tested because the action of the main gear oleos and the aerodynamic characteristics of the airplane cause excessive bounce after impact.

e. The speed brakes, when extended, effectively improve the speed control in the carrier approach and increase the speed decay after the cut.

f. The airplane dimensions are within the flight deck and hangar deck critical clearances.

It is recommended:

a. That the catapult launching bridle, NAF 49581 (8 ft. 6 in. long 7/8 in. wire rope be used for catapulting the F3D.

b. That a ramp over the shuttle be developed for catapult spotting operations of nosewheel-equipped aircraft.

c. That a reliable catapult-hook down-stop be installed.

d. That the throttle static grip be modified to provide positive extension.

e. That the accessibility of catapult hooks and holdback fittings be given more consideration in the design of future airplanes.

f. That elevator tab setting 8° nose-up, aileron tab setting 0 and rudder tab setting 0 be used in initial carrier operations.

g. That the oil tank vent line be modified to prevent excessive oil overflow in catapult launchings and arrested landings.

h. That the airplane be catapult-launched from a tail-low attitude in order to reduce to a minimum the angular rotation required to attain flight attitude.

i. That the speed brakes be used in carrier-type landings.

j. That the main gear oleos be modified to eliminate the oleo bounce in carrier-type landings.

k. That the tail bumper be caused to contact the deck before the main gear to increase the airplane nosedown pitch due to impact in carrier-type landings.

l. That the tail bumper be lengthened to insure tail bumper first impact and its fuselage carry-through structure be strengthened sufficiently to withstand the impact loads imposed by the landing technique recommended in k. above.

m. That consideration be given to the employment of a tail-wheel-type alighting gear, with a variable-height tailwheel strut, for this and future carrier-type aircraft to overcome the deficiencies encountered in the subject tests and inherent in the use of the nosewheel-type alighting gear in carrier operations.

n. That the tail-hook dashpot damping forces be reduced as much as possible without impairment of the hook bounce characteristics to minimize vertical bending loads on the hook shank.

o. That the structural strength of the nosewheel rims be equalized.

p. That the effectiveness of the barrier guard be investigated.

q. That the main gear tire pressure be maintained at 140 psi. for carrier operation.

r. That the nosewheel tire pressure be maintained at 90 psi. for carrier operation.

s. That instrumented tail hooks be calibrated up to the proportional limit for combined loads.

As can be seen from the above conclusions and recommendations, the XF3D-1 would require a good deal of modifications to be acceptable for day operations, let alone night operations. For these reasons and the fact that a night fighter capable of intercepting jets would be needed in the Korean conflict, the Skynight was earmarked for Marine squadrons.

What follows are the results of the accelerated carrier suitability tests on the F3D-2 Skynights Bu.Nos. 124596, 124598 and 124611 dated 13 Feb 1952.

The following is a chronological record of the tests:

a. Date of original test directive ..... 2 Feb 1951
b. Date model F3D-2, Bu.No. 124596 received by Flight Test ..... 15 Jul 1951
c. Date first shipboard tests commenced ..... 23 Jul 1951
d. Date accelerated carrier suitability tests completed with model F3D-2, Bu.No. 124596 ..... 18 Sep 1951
e. Date model F3D-2, Bu.No. 124598 received by Flight Test ..... 8 Nov 1951
f. Date model F3D-2, Bu.No. 124598 test instrumentation-installation completed .. 25 Nov. 1951
g. Date model F3D-2, Bu.No. 124611 received by Flight Test ..... 28 Nov 1951
h. Date second shipboard tests commenced .. 3 Dec 1951
i. Date test flying completed ..... 7 Dec 1951

The following comments were made on the catapult launching tests:

a. The time required to spot and tension the airplane on the catapult is normal. No tow bar or nosewheel steering device was used during these tests.

b. The bridle attachment operation may be accomplished without delay and the bridle shedding characteristics of the catapult hooks are satisfactory.

c. The pilot's and radar operator's headrests are satisfactory.

d. The catapult throttle static hand grip is satisfactory.

e. The airplane is directionally stable in the catapult launching run. Launchings were made with main wheels spotted off center up to six inches and nosewheel cocked at angles up to 30° from the center line of the catapult. The pitch attitude of the airplane at take-off was approximately 4°.

f. The pilot's view from the cockpit is satisfactory when

directed out of the left side of the cockpit. Vision out of the right side is poor because of the location of the pilot's seat on the left of the cockpit and obstructions such as the radar scope, gun sight, and magnetic compass. Visibility from the cockpit is greatly reduced by rain, fog or salt spray. Rain and salt spray on the flat area of the windshield will tend to reduce visibility by as much as 80%.

g. The main wheel tire pressure was maintained at 185 psi and the nosewheel tire pressure was maintained at 180 psi during the tests. These pressures were satisfactory for catapult launchings at all gross weights.

The following comments were made on the arrested landing tests:

a. Control and stability characteristics of the airplane are satisfactory during the approach and after a cut is taken.

b. The characteristics of the airplane and engine are satisfactory during wave-offs.

c. The pilot's view of the Landing Signal Officer during the carrier approach is distorted because of windshield refraction and left side panel curvature. The view is further obstructed by rain, salt spray, and fog condensation which occurs during inclement weather conditions.

d. The controls for the arresting hook are satisfactory.

e. During extreme off center landings, the airplane exhibits slight yawing characteristics during wire runout as the arresting hook slides on the wire.

f. The wing drop tanks and supporting racks are satisfactory for arrested landings. Arrested landings were made with tanks one half full of water and also with one hundred and ten gallons of water (simulated full fuel).

g. The arresting hook bounce characteristics are satisfactory.

PHOTO BELOW — F3D-2 124598, piloted by Lt.Cdr. Lawrence Hayworth, about to catch the wire aboard CV-41. Note how pilot is straining to see over the nose and the R1O is trying to look around it. Douglas photo via Craig Kaston.

The following conclusions are drawn from the tests:

a. The model F3D-2 airplane, as modified with the F3D carrier suitability changes, is satisfactory for catapult launchings at gross weights up to 26,600 pounds.

b. The model F3D-2 airplane, as modified with the F3D carrier suitability changes, is satisfactory for arrested landings up to gross weights of 22,600 pounds (overload landing gross weight), except for high vertical bending moments at the arresting hook critical shank section.

It is recommended:

a. That the catapult equipment and tire pressures as specified in type H, Mark 4, Mod 1 catapult bulletin no 58 be used for catapult launching operations.

b. That the technique and tab settings, elevator 8° nose-up, aileron 0, and rudder 0 be used for catapult launching operations.

c. That the catapult holdback access hole be enlarged by extending the cutout aft to station 387,000 to prevent physical contact between the deck mounted holdback anchor and the fuselage skin.

d. That arrested landings be made using the technique described in enclosure (4) (enclosure not available).

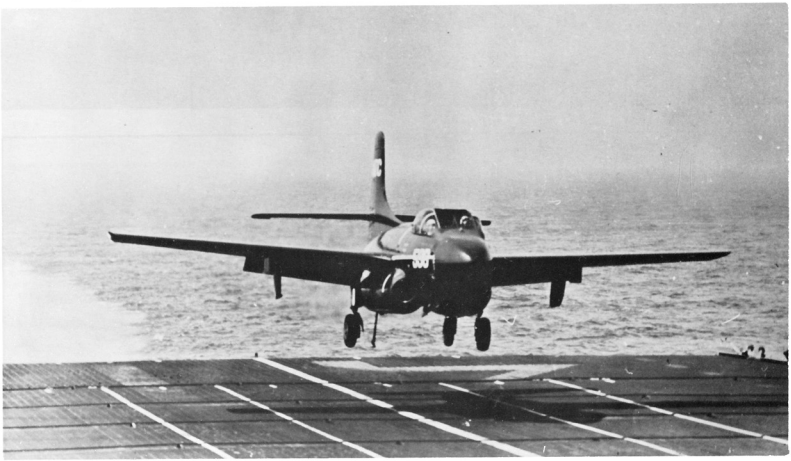
e. That the arresting hook be redesigned to withstand the high vertical bending moments which occur in arrested landings.

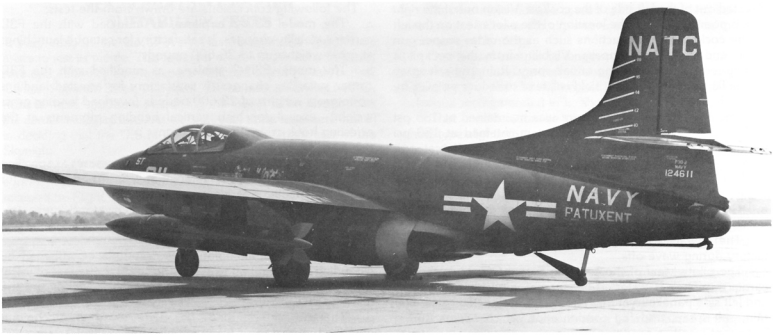
f. That the left curved windshield panels be modified to improve the pilot's view of the Landing Signal Officer during the approach.

g. That some external method of windshield cleaning be devised so that the forward windshield panels can be kept clean in inclement weather.

h. That adequate tie-down rings be provided on the nose gear and the main gear.

i. That the Fenwal fire detection system be improved or a satisfactory substitute provided.

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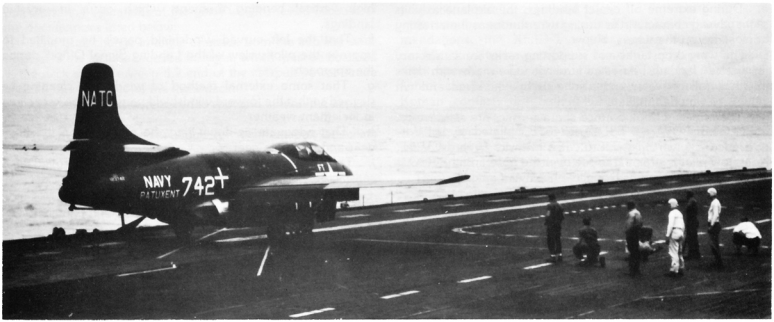
NATC
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742

NATC
NAVY
TACTICAL TEST 743

PHOTOS AT LEFT: TOP — Another of the original dash two carrier test aircraft, 124611, seen in April 1952. ST on nose stands for System Test. National Archives photo. MIDDLE — F3D-1, 123742, seen during carrier testing not described in text. Pilot was Lt.Cdr. Oscar I. Chenowath. FT on nose stands for Flight Test. Note large camera reference mark next to 742. Douglas photo. BOTTOM — F3D-1, 123743 of NATCs tactical test division, note main wheels are light grey. R. Besecker photo. PHOTO ABOVE — F3D-1, 123751, with light grey nose and main wheels and non-standard red intake lips and danger marking. Harry Gann photo.

VC-3

VC-3 was commissioned on 20 May 1949 at San Diego, Calif. Then on 27 Sept. 1949, the squadron relocated to NAS Moffett Field, Calif. The squadrons mission was to train fleet replacement pilots and maintenance personnel and to provide Fleet instrument training. In this capacity VC-3 received the first production F3D-1, and introduced it into the Fleet.

PHOTO AT RIGHT — 3 Mar. 1951, F6F, F4U, and F3D night fighters of VC-3 over the Golden Gate Bridge. National Archives photo. BELOW — Composite Squadron Three patch. Grey Knight with black markings and book. Red V. Light blue shield on dark blue field. White boarder with black lettering. Photo by Steve Ginsberg.

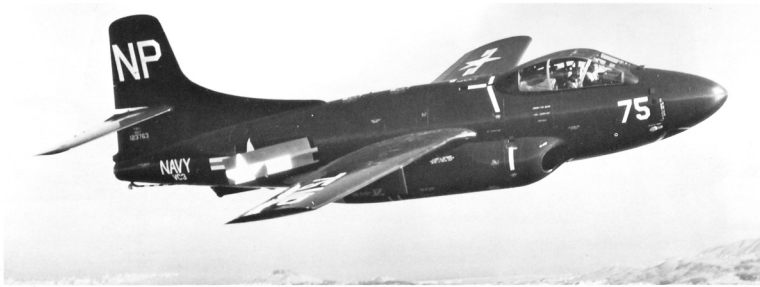
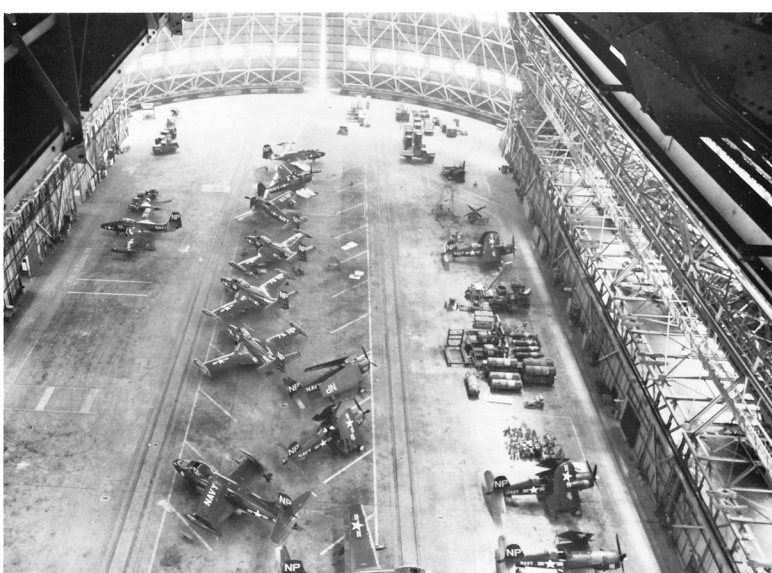
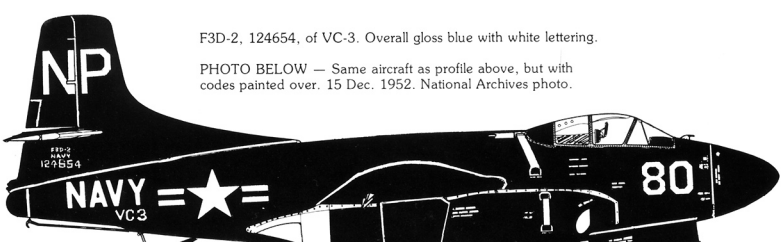


PHOTO ABOVE — F3D-1, 123763, seen again over San Francisco on 9 Mar. 1951. Note stenciling and white stripe indicating steps. Also note that speed brake is open and that the star is painted on the inside too. PHOTO BELOW — Interesting photo of the airship hanger floor at NAS Moffett Field. For readers of the Banshee book, note F2H-2s, 72/NP, 78/NP, 73/NP, 76/NP, and 75/NP. Also present are three F6Fs, 83/NP, 82/NP and one unmarked, plus F4Us, 32/NP, 59/NP, 16/NP and ?/NP. Note stacks of tires near truck and prop and jet engines as well as jet shipping containers between the Corsairs. In foreground are two F3Ds, 90/NP and 91/NP. All aircraft are from VC-3. 13 Oct. 1952. National Archives photos.





F3D-2, 124654, of VC-3. Overall gloss blue with white lettering.

PHOTO BELOW — Same aircraft as profile above, but with codes painted over. 15 Dec. 1952. National Archives photo.

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2. Aero Digest. Probably 1950 or 1951. (Excellent article.)
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2. Squadron Histories. VMF-531, VMF-542, VX-4, VF(AW)-3, VMF-513.

VX-4

AIR DEVELOPMENT SQUADRON FOUR

Commissioned in 1950 on the East Coast, VX-4 was initially charged with the development of multi-engine Airborne Early Warning (AEW) radar planes and systems. From the New England area, VX-4 moved to NAS Patuxent River, Maryland in 1951. Shortly thereafter, with its AEW projects completed, VX-4 was decommissioned in order to form one complete AEW squadron as well as the nucleus for several others.

On 15 Sept. 1952, VX-4 was brought into being at its current home, Naval Missile Center, Point Mugu, Calif. The squadron was recommissioned under the command of CDR. James G. Sliney. The squadrons new mission was to operationally evaluate air-launched guided missiles and their related systems, and to establish the techniques and procedures which would give the fleet the maximum utilization of an aircraft and its given missile system.

The development of the Sparrow I missile became the first project for VX-4, and the first aircraft used for this purpose was the F3D Skynight. The Skynight would go on to help develop the Sparrow II and other missiles, and would remain in use at NAS Point Mugu until the 1960s.

The prototype XF3D-1, 121458, served as the first test aircraft for the Sparrow I missile, followed by two F3D-1s which were converted to F3D-1Ms to implement the test force. Initial testing was successful enough to warrent the conversion of 16 F3D-2 Skynights into F3D-2Ms.

In 1954, sufficient F3D-2Ms were transferred to VMF(N)-542 to make it the first active guided missile squadron.

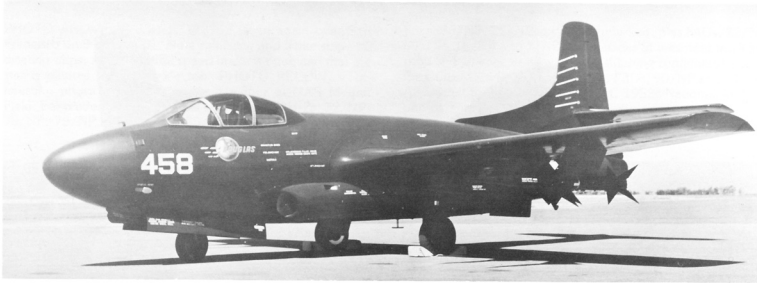
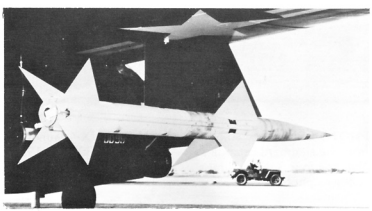
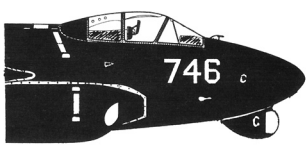


PHOTO ABOVE — XF3D-1, 121458 fitted out as the first test aircraft for the Sparrow I. Note small engine nacelles and the Douglas logo. Photo via Stan Wyckoff. PHOTO BELOW — Beautiful inflight formation photo of four VX-4 F3D-2 Skynights. #11 is 125853, #12 is 125844, #13 is 125791, and #14 is 125836. Photo via Clay Jansson.





PHOTOS ABOVE: TOP LEFT — XF3D-1, 121458 with Sparrow I mounted. 20 Jan. 1953. TOP RIGHT — Left front view of Sparrow I, note that missile has been zapped by a USMC sticker. 18 Nov. 1952. LOWER LEFT — Right rear view of Sparrow I. Note added on nose radar installation. 18 Nov. 1952 PHOTOS BELOW: Top — F3D-1M, 123746, on the taxi strip on 3 Dec. 1952. Note Point Mugu on tail and chin radar installation. Tail of aircraft aft of the engines appears to be red. USN photos. BOTTOM — 30 June 1954, F3D-2M, 127343, piloted by L. Cmdr. J.F. Bauman of VX-4 Landing aboard U.S.S. Hancock, CVA-19. National Archives photo.

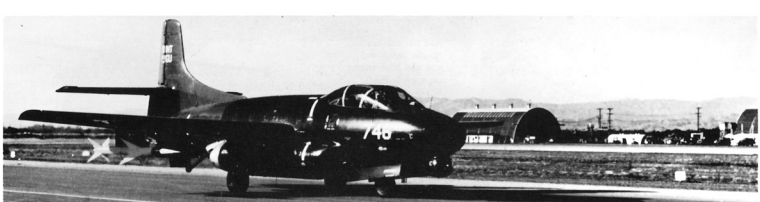
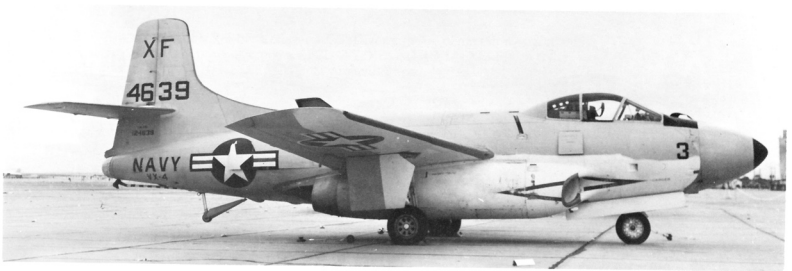


PHOTO ABOVE — F3D-2M, piloted by Lt. Wm. Early, coming on board the U.S.S. Hancock (CVA-19) during project steam evaluation tests, on 22 June 1954. Note position of missile pylons.

PHOTO BELOW — Another F3D-2M from VX-4 launching from the starboard catapult of the Hancock on 30 June 1954. Note the four Sparrow I missiles on the wing pylons. National Archives photos.

VX-4 patch, boarder, lettering and ocean medium blue. Sky and background for lettering gold. Missile and continents grey. Red neutron tracks, missile flame and sun and hash marks on a white field. White stars. Photo by Steve Ginsberg.

PHOTOS: TOP — F3D-1M, 123747, in Sept. 1957 with XKD-4-R1 #KD4230 under wing. Note standard fighter nose and installation of cameras in the ammo loading door and in the rear fuselage. Aircraft is painted in the post 1956 grey and white scheme with black lettering step stripes and anti-glare panel. Natural metal leading edges and intake lips. Red rescue arrow and intake chevrons. Blue nose wheel and tan & brown radome tip. MIDDLE — F3D-1M, 123758, on 16 Jan. 1958 with Sparrow 2 under wing. Colors as above except for unfaded black radome tip. USN photos via Stan Wyckoff. BOTTOM — F3D-2T2, 124639 of VX-4 in Aug. 1959. Colors are grey and white with day-glo on nose and aft half of aircraft. Photo by Harry Gann.



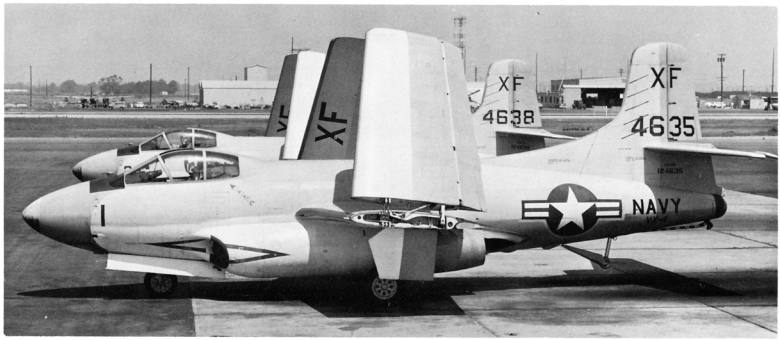


PHOTO ABOVE — F3D-2T2, 124635 and 124638 of VX-4. Photo via Stan Wyckoff. Note wing fold. Colors above as in profile below of 124638. Overall grey and white with day-glo trim. Natural metal leading edges and exhaust cones. Red intake lips and chevrons and rescue arrows. Flat black anti-glare panel and tail radome. Dirty tan-brown nose radome.

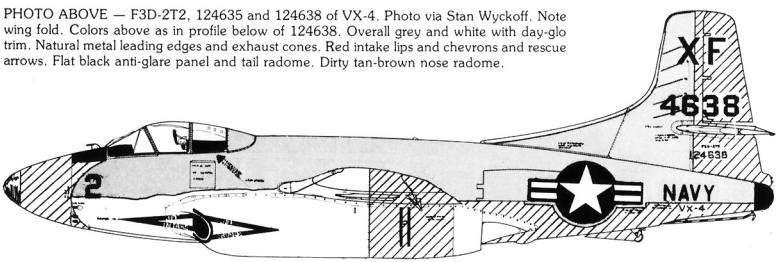


PHOTO BELOW — Unusual designation YF3D-2M, 127028 at MASDC on 18 April 1961. Note how a sway brace has been added to brace the missile pylon. Also note blue main wheels. Harry Gann photo.

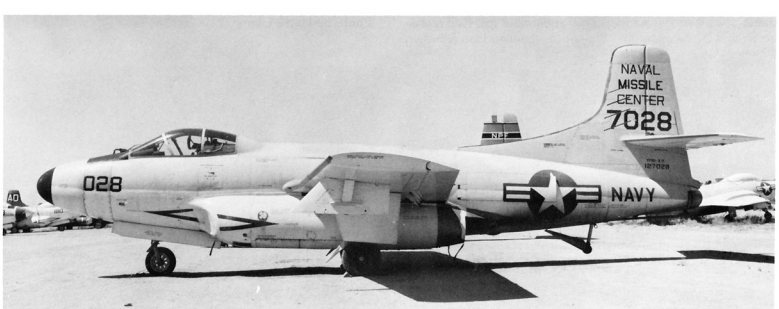
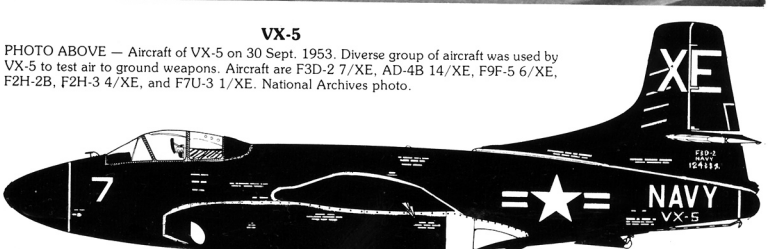


PHOTO ABOVE — F3D-2M, 125882, from Naval Air Missile Center Point Mugu, note ACEL on tail. Note grey oversprayed area behind faded star and freshly painted Navy. This overspray covers the words Marines and VMF(N)531. Note red tail markings. Photo by Harry Gann, 18 April 1961.

VX-5

PHOTO ABOVE — Aircraft of VX-5 on 30 Sept. 1953. Diverse group of aircraft was used by VX-5 to test air to ground weapons. Aircraft are F3D-2 7/XE, AD-4B 14/XE, F9F-5 6/XE, F2H-2B, F2H-3 4/XE, and F7U-3 1/XE. National Archives photo.



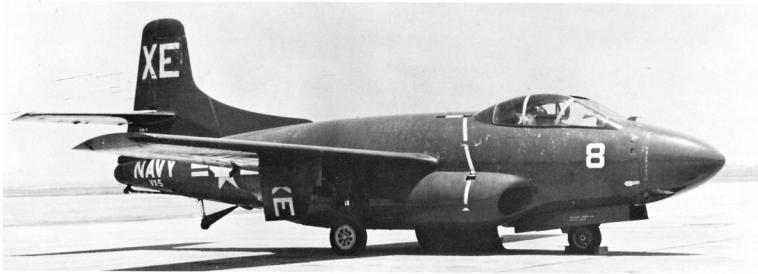
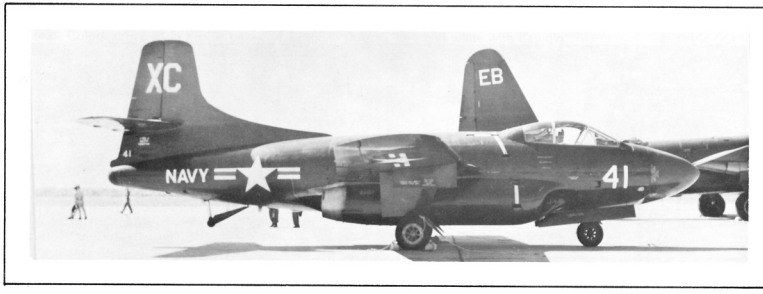


PHOTO ABOVE — F3D-2 of VX-5 in 1953. Overall gloss blue with grey main wheels. Note how one of the engine access doors is open. Tailhook photo VF02274 by Hal Andrews.

PHOTO BELOW — F3D-2, 125796 of VX-3. Overall gloss blue with white codes and grey main wheels. Photo by Balough via Menard.



VC-4

VC-4 has the distinction of being the only Navy squadron to deploy the F3D Skynight on a cruise. Although there have been other photos printed of Skynights in action on carriers, no evidence has appeared to prove that any other squadron ever deployed the F3D at sea.

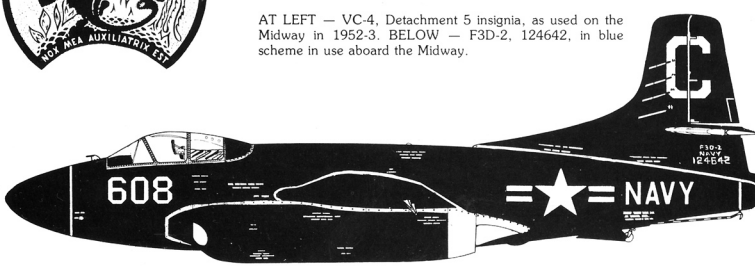
VC-4 deployed the Skynight on the 1952 Med. cruise aboard the Coral Sea and on the 1952/53 Med. cruise aboard the Midway. The following information was gleaned from the Midways cruise book. In 1952 VC-4 was the largest composite squadron in the Navy, with one hundred twenty-five pilots and one thousand men. Home based at NAS Atlantic City, New Jersey, VC-4 sent detachments aboard both Atlantic and Pacific based ships.

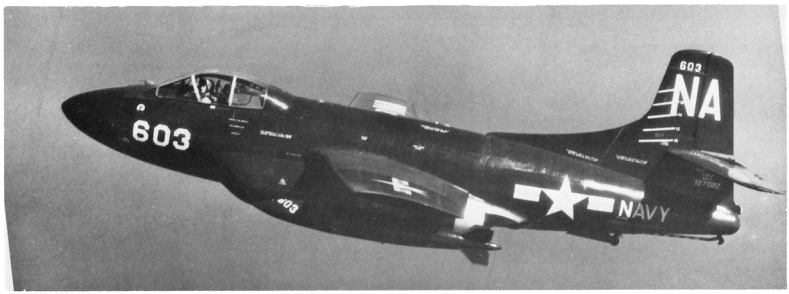
The mission of the squadron, during this time period, was to protect the fleet from airborne attack at night and in all types of weather, with a secondary mission of special weapons handling. In pursuit of these missions VC-4 flew the F3D, F2H-2B, F2H-3, F4U-5N, TU-2 and the SNB. During the Midway cruise, VC-4 Detachment Five deployed with the F3D in the night fighter role and the F2H-2B Banshee as special weapons carriers.

PHOTO BELOW — VC-4 patch. Black boarders and lettering, red bomb, dark blue sea and light blue sky. Gold background outside arrowhead. White and brown eagle with yellow claws and beak. Photo by Steve Ginsberg.

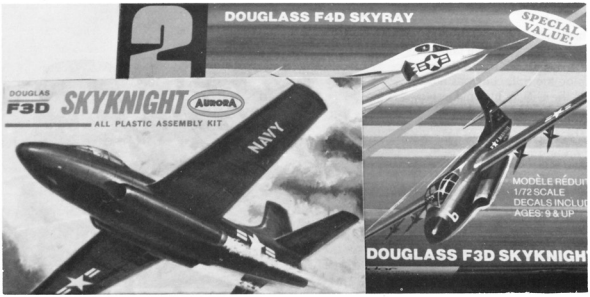
PHOTOS: TOP — F3D-2, 124633, of VC-4. Note #70 on wing tank and #72s intake cover. BOTTOM — F3D-2, 124545, nose #74, both photos 1952. Photos via Clay Jansson.

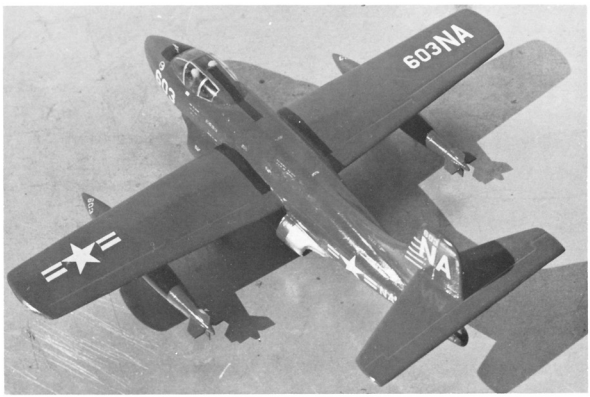
AT LEFT — VC-4, Detachment 5 insignia, as used on the Midway in 1952-3. BELOW — F3D-2, 124642, in blue scheme in use aboard the Midway.





PHOTOS ABOVE: TOP — F 3D-2 of VC-4 prior to taking off for NAS Jacksonville, Fla., to operate aboard the Franklin D. Roosevelt (CVA-42) during operation mainbrace, on 18 Dec. 1952. BOTTOM — F3D-2, 127022 in flight from the USS Lake Champlain on 25 April 1953. Note squadron badge above 603 on nose. National Archives photos. PHOTO AT RIGHT — Model of F3D-2 in the markings of 127022 above.





PLASTIC SKYNIGHTS

In the 1950s, Aurora made a Skynight kit in sub 1/72 scale as illustrated by the box top at left. Also at left is the box top of the kit that was reissued in the 1970s by Addar. The photo in the middle shows the model as it is built from the box, with a single pilot figure, scribed decal placement and no landing gear. The kit also includes four Sparrow missiles. Photo at bottom left illustrates the Airmodel vacuform kit of the Skynight sold during the 1970s. The kit is in 1/72 scale and is quite accurate. The Airfix F4D Skyray kit provided many parts for detailing. An accurate Skynight nose wheel was made from one of the Skyrays main wheels. The Skyrays fuel tanks and tail bumper were also modified to fit the F3D. The tailhook came from the Hasegawa TA4 kit. Main wheels came from the Revell A5A kit and the gear and doors were modified from the Monogram F8F Bearcat and F7F Tigercat kit. Someday, with luck, and letters from modelers, Hasegawa might be persuaded to build us a 1/72 injection moulded kit.

TAILHOOK ASSOCIATION
CARRIER NAVY

Tailhook Association
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VF-14

The Tophatters of VF-14 transitioned to the F3D-2 in Jan. 1954. The Skyknight was the squadrons first jet and was replaced in early 1956 by the then, new F3H-2N Demon. VF-14 did not have time to deploy the F3D, but was able to carrier qualify in the type aboard the U.S.S. Intrepid in Nov. 1954.

F3D-2, 127038, on 9 Nov. 1954. Overall gloss blue with yellow fuselage flash and wing tip and fin tip.

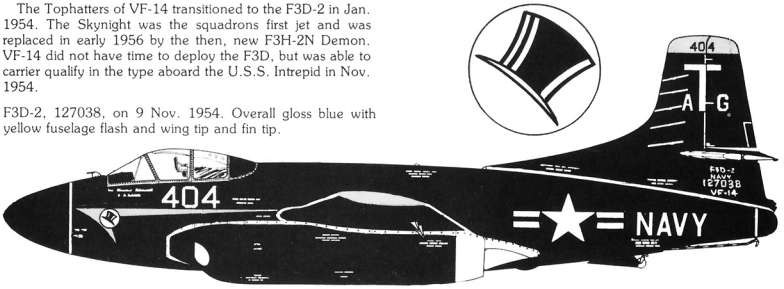
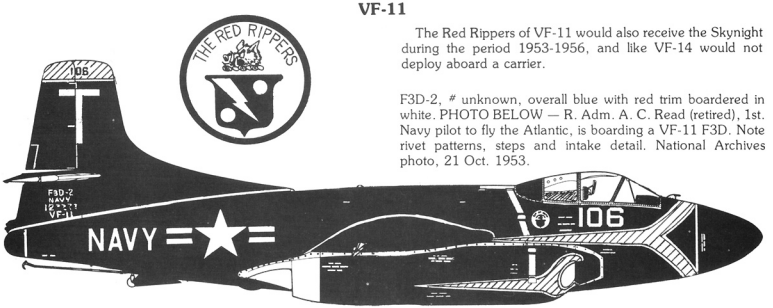


PHOTO AT LEFT — F3D-2, 125823, being towed at a 1955 airshow, note that the A and G have been dropped from the tail code. Photo via Nicolaou Archives. BELOW — F3D-2, 127072 with everything down, overflys the U.S.S. Intrepid (CVA-11) in Nov. 1954. U.S.N. photo.

The Red Rippers of VF-11 would also receive the Skynight during the period 1953-1956, and like VF-14 would not deploy aboard a carrier.

F3D-2, # unknown, overall blue with red trim boardered in white. PHOTO BELOW — R. Adm. A. C. Read (retired), 1st. Navy pilot to fly the Atlantic, is boarding a VF-11 F3D. Note rivet patterns, steps and intake detail. National Archives photo, 21 Oct. 1953.



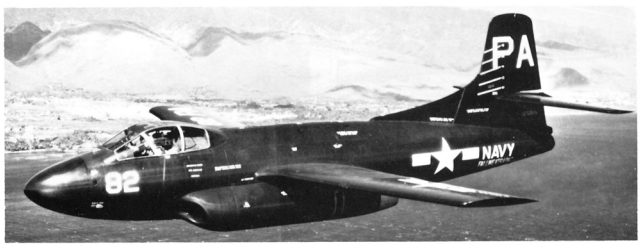
VF(AW)3

VF(AW)3 was originally activated as NACTUPAC on 22 Aug. 1944. Then based at NAS Barbers Point, the squadrons mission was to provide night combat training for Pacific coast pilots.

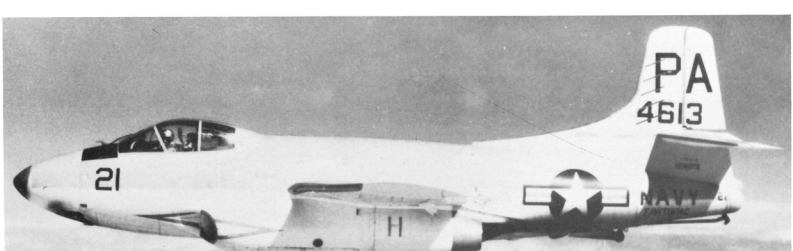
On 6 April 1946, the squadron started a series of name changes, culminating in VF(AW)3. These designations were: 6 April 1946 — Night DevRon Pac., 15 Nov. 1946 — VCN-1, 1 Aug. 1948 — FAWTUPAC and 2 May 1958 — VF(AW)3.

After the war the squadron's mission changed to that of an all-weather training squadron. As FAWTUPAC, the squadron almost exclusively used the F3D Skynight in this role. From 27 Oct. 1953 to 2 May 1958, FAWTUPAC maintained Detachment Bravo at NAS Moffett Field. In Feb. 1955, FAWTUPAC transferred its home base to NAS North Island Calif. Also in 1955 FAWTU PAC was given the job of supplementing the Air Forces Air Defense program.

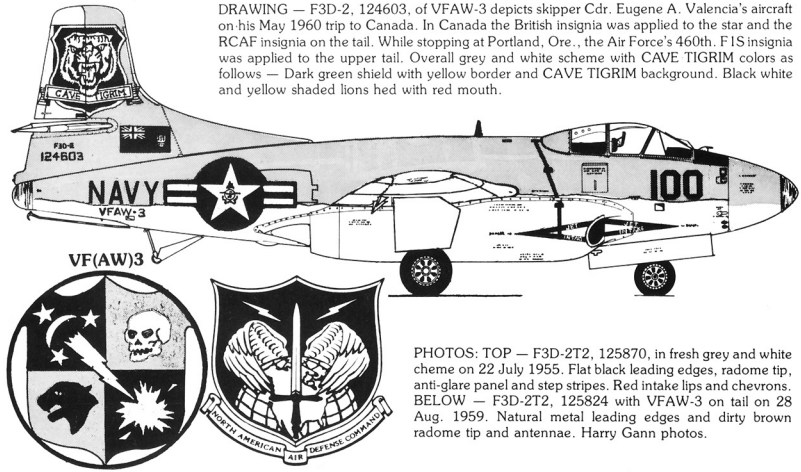
The Skynights of FAWTUPAC became a familiar sight in the San Diego skies, for almost two decades. Even though the Skynights were officially replaced by F4D Skyrays in 1958, the F3D continued to chalk up hours with the squadron until its decommissioning in March 1963.



PHOTOS: TOP — F3D-2, 125815, over Hawaii on 12 Nov. 1953. Lettering under Navy FALLWEATRAPAC. National Archives. Photo. MIDDLE — Same aircraft at North Island with words changed to FAWTUPAC. Harry Gann photo. BELOW — F3D-2T2, 124613 in flight. Note small 21 on tail. Photo via Bob Kowalski.



DRAWING — F3D-2, 124603, of VFAW-3 depicts skipper Cdr. Eugene A. Valencia's aircraft on his May 1960 trip to Canada. In Canada the British insignia was applied to the star and the RCAF insignia on the tail. While stopping at Portland, Ore., the Air Force's 460th. FIS insignia was applied to the upper tail. Overall grey and white scheme with CAVE TIGRIM colors as follows — Dark green shield with yellow border and CAVE TIGRIM background. Black white and yellow shaded lions hed with red mouth.



PHOTOS: TOP — F3D-2T2, 125870, in fresh grey and white cheme on 22 July 1955. Flat black leading edges, radome tip, anti-glare panel and step stripes. Red intake lips and chevrons. BELOW — F3D-2T2, 125824 with VFAW-3 on tail on 28 Aug. 1959. Natural metal leading edges and dirty brown radome tip and antennae. Harry Gann photos.

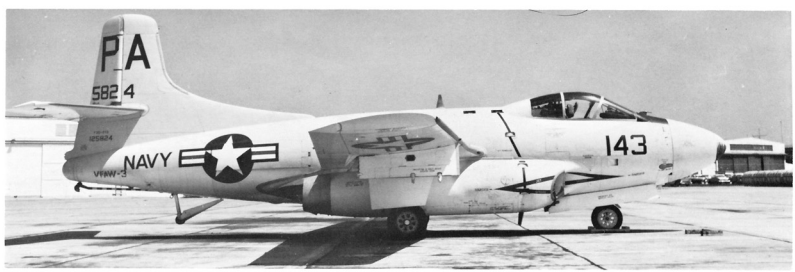
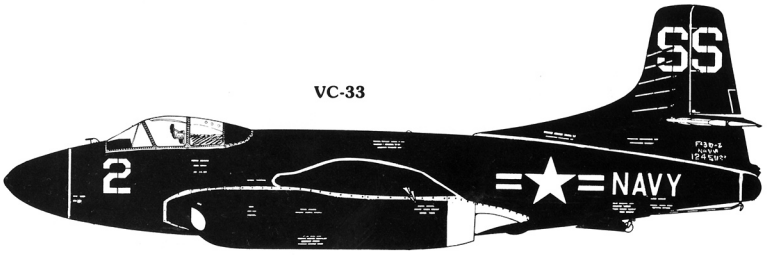


PHOTO ABOVE — Flight line at NAS North Island with Skynights upstaged by their replacement, the Douglas F4D Skyray. Douglas photo via N. M. Williams.

PHOTO BELOW — F3D-2 in the colors of VC-33 on 24 Nov. 1952. National Archives photo.

AUTOMATIC LANDING SYSTEM TEST

In 1957, the Carrier Suitability Section of the Flight Test Division at the Naval Air Test Center tested the Bell ALS system aboard the U.S.S. Antietam. The aircraft used for the test was a Douglas F3D Skyknight. The Navy required the system to land the aircraft within plus or minus 30 feet longitudinally and plus or minus 25 feet laterally. Bell photo below shows F3D about to touch down about 25 feet off center. Note control units on deck in foreground.



VC-33

FAWTULANT

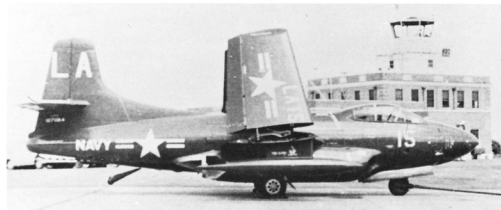
FLEET ALL WEATHER TRAINING UNIT ATLANTIC

Charged with the same mission as FAWTUPAC, FAWTULANT was stationed at Boca Chica Field, Key West, Florida. In addition to training Navy pilots, the squadron was given the job in 1956-7 of training Canadian pilots. The Canadians came to sunny Florida to learn how to effectively use their radar equipped F2H-3 Banshees.

In addition to the usual ground school and flight simulator time, the Canadians flew a few hours of daylight flight familiarization before starting night ops. Each pilot was scheduled for 120 night hops; of which 60 flights were duel and 60 were solo. The pilots were directed toward each other by ground radar and then were switched to the aircrafts radar for the kill.

By 1957, the Skynight was becoming an unexciting old aircraft, and the pilots of FAWTULANT gave the F3D a new nickname. This nickname was the "Drut". Just reverse the letters to know how they arrived at that name.

PHOTO: TOP-F3D2, 127084, in early FAWTULANT markings. Note location of LA 15 on lower wing. Nicolaou Archives photo. MIDDLE — F3D-2, 124660, also in the early markings. BOTTOM — F3D-2T2, 127069, check back cover for color profile, note post 1958 tail code of HG. Photos via Clay Jansson.



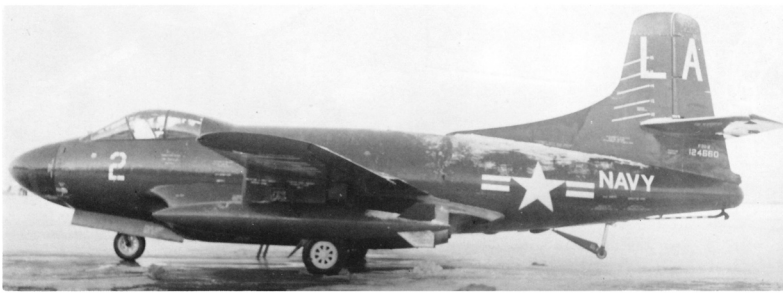
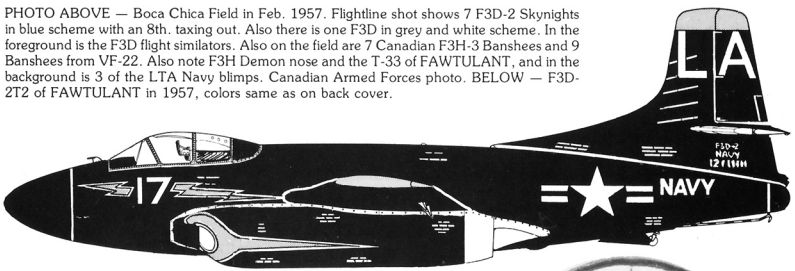


PHOTO ABOVE — Boca Chica Field in Feb. 1957. Flightline shot shows 7 F3D-2 Skynights in blue scheme with an 8th. taxing out. Also there is one F3D in grey and white scheme. In the foreground is the F3D flight similators. Also on the field are 7 Canadian F3H-3 Banshees and 9 Banshees from VF-22. Also note F3H Demon nose and the T-33 of FAWTULANT, and in the background is 3 of the LTA Navy blimps. Canadian Armed Forces photo. BELOW — F3D-2T2 of FAWTULANT in 1957, colors same as on back cover.

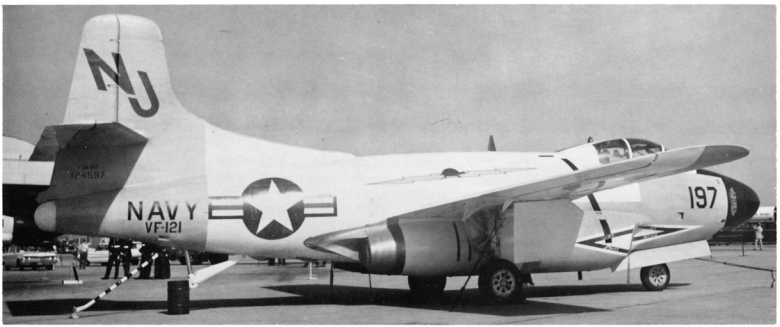


VF-121

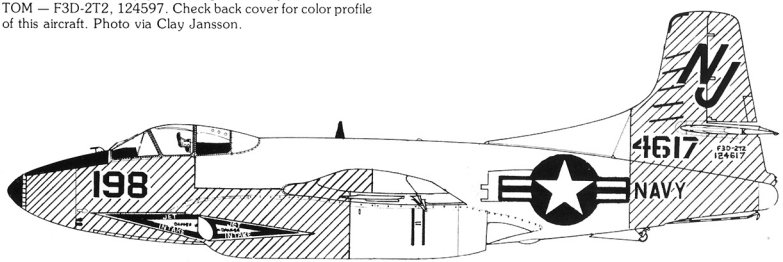
In 1958 under a reorganization plan for carrier aviation, VF-121 became the west coasts permanent replacement air group. Charged with the mission of indoctrinating aviators and maintenance personnel into the fleet, VF-121 was equipped with the F11F-1, F3H-2N, F2H-4 and the F3D-2T2.

The Skynights of VF-121 were used to train F3H Demon drivers in radar intercept missions. This was done until the Demon was dropped in 1963. The F3D-2T2 (TF-10B) continued to train F4 R10s, until sufficient quantities of F-4Bs had been delivered in 1965.

VF-121 patch, white with blue star and black cat, red border flames and words VF-121 PACEMAKER.



PHOTOS: TOP — TF-10B, 124629, VF-121, at Pima County Air Museum in Aug. 1976. Sun has bleached the radome white as well as the day-glo markings. Photo by Author. BOTTOM — F3D-2T2, 124597. Check back cover for color profile of this aircraft. Photo via Clay Jansson.

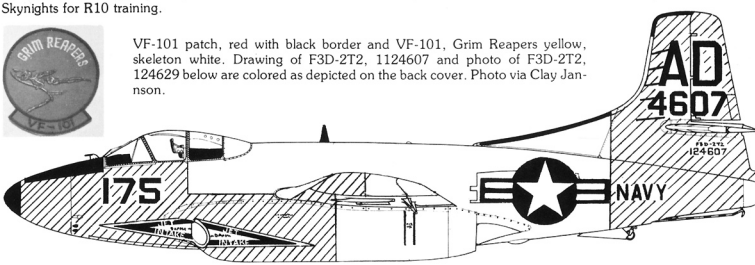


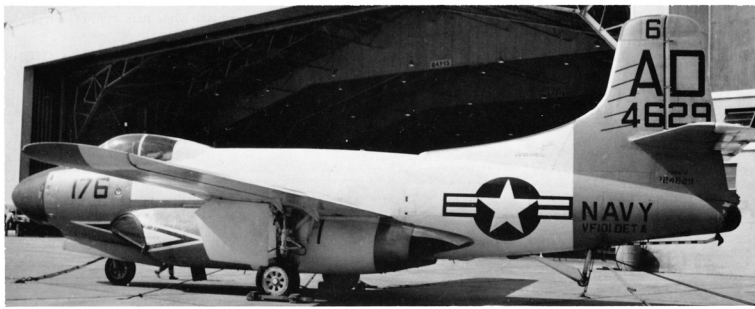
VF-101

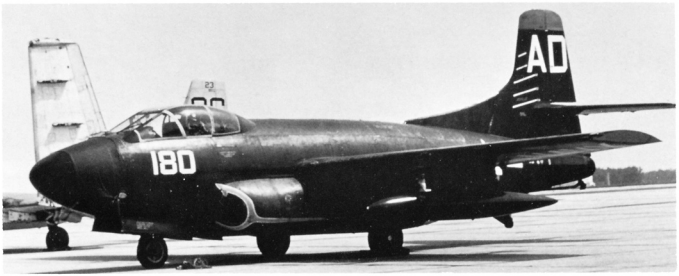
In 1958 VF-101 became the Atlantic Coast counterpart of VF-121. In this capacity it operated at least ten F3D-2T2 Skynights for R10 training.

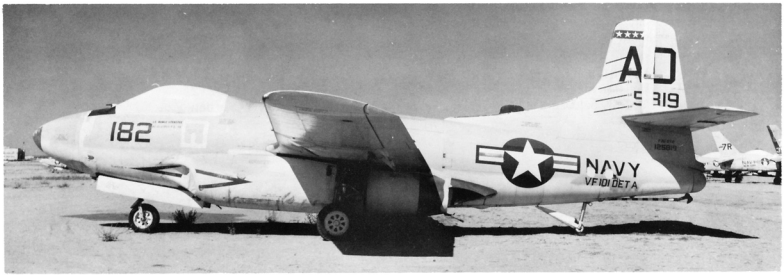
PHOTO ABOVE — F3D-2T2, 127081 of VF-121, colors as depicted on the back cover. Photo via Clay Jannson.

VF-101 patch, red with black border and VF-101, Grim Reapers yellow, skeleton white. Drawing of F3D-2T2, 1124607 and photo of F3D-2T2, 124629 below are colored as depicted on the back cover. Photo via Clay Jannson.









PHOTOS: TOP — F30-2T2 of VF-101 in interesting markings. Aircraft is all blue with FAWTULANT yellow markings and freshly painted VF-101 AD tail code and 180 nose #. Photo by David W. Lucabaugh via Picciani Aircraft Slides, Aug. 1958. MIDDLE — F3D-2T2, 125819, on 17 April 1961. Stripe on top of fin is red with white stars. Harry Gann photo.

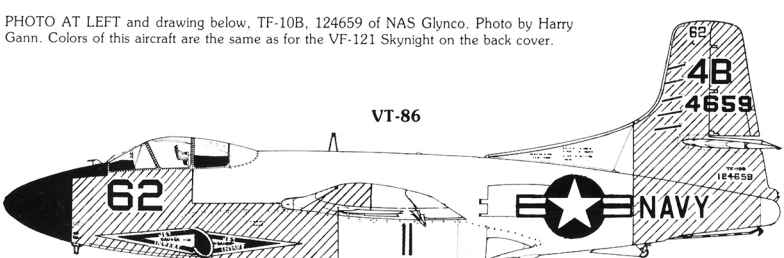
NAS GLYNCO VT-86

In June of 1961, NAS Glynco started taking over the responsibility of training F-4 R10's for VF-121 and VF-101. With a base tail code of 4B, NAS Glynco operated its Skynights until about 1965 when they were replaced by F-4's.

At Glynco as well as at VF-101 and VF-121, prospective R10's used the TF-10B on cross-country navigational training flights, under VFR and actual IFR conditions.

PHOTO BELOW — TF-10B, 125879, of NAS Glynco, on 21 June 1963. Aircraft is grey and white with day-glo nose and wing stripes. Note small 63 on fin tip. USN photo.

PHOTO AT LEFT and drawing below, TF-10B, 124659 of NAS Glynco. Photo by Harry Gann. Colors of this aircraft are the same as for the VF-121 Skynight on the back cover.



VMF(N)-542

As mentioned earlier, the El Toro based squadron operated the XF3D-1 in Oct. 1948, thus becoming the first Marine squadron to fly the type. Early impressions from squadron personnel and its commanding officer LtCol John D. Howard were very favorable.

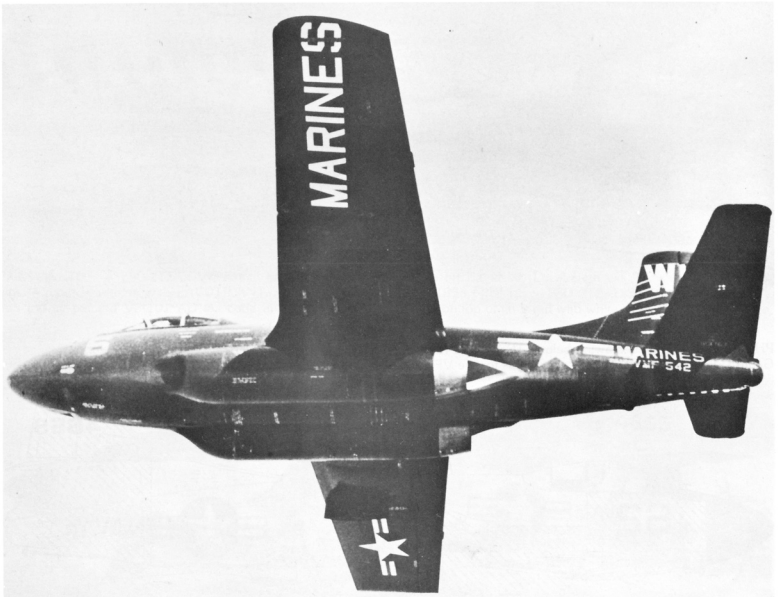
Due to the Korean War, VMF(N)-542 was operating F7F Tigercats in Korea on 15 Sept. 1950. Then on 15 Feb. 1952 all aircraft and equipment were turned over to VMF(N)-513, and all unneeded personnel, returned to El Toro on 24 March 1952.

Once at El Toro the squadron personnel learned that they were recalled in order to reorganize and equip with the F3D Skynight. VMF(N)-542 was charged with the development of the F3D into a viable fighting machine. The first Skynights received were the F3D-1, followed by the dash two shortly thereafter. During this period the squadron was comprised of an equal number of Skynights & Tigercats.

On 27 May 1952, LtCol P.D. Lambrecht took VMF(N)-542s Skynights to Korea via Moffett Field and Atsugi Japan. Under the command of LtCol J.C. Scott, the squadrons Tigercats left for Korea via NAS North Island. VMF(N)-542 arrived in Japan on 18 June 1952 and by the 22nd, fourteen of the fifteen Skynights ahd been repainted in the flat black with red code letters scheme that was used during the Korean campaign. At the same time the tail code WH was changed to WF as once again VMF(N)-542 was absorbed by VMF(N)-513 with Col. Lambrecht becoming commanding officer of VMF(N)-513. Meanwhile the parent VMF(N)-542 remained in the States training F3D crews and becoming the first Marine missile fighter squadron with the F3D-2M.

In 1959 VMF(N)-542 traded in their F3D-2M Skynights for the F4D Skyray.

PHOTO BELOW — F3D-1, 123767, of VMF (N) 542, Note absence of (N) in the photo and the word NAVY appears above the Buro #. Marine photo via Harry Gann.



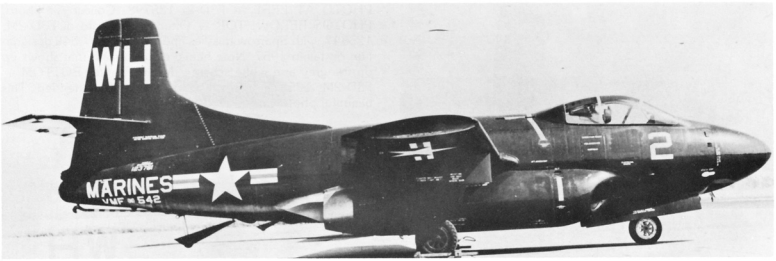


PHOTO ABOVE — F3D-1, 123761, note small (N) between VMF and 542, also on this dash one the proper word MARINES is above 123761. Also note light grey nose wheel. Marine photo via Harry Gann.

PHOTO BELOW: TOP — F3D-2, 125816, with folded wings on 27 Aug. 1954. BOTTOM — F3D-2, 127049, on 30 July 1955. These two excellent photos by W. T. Larkins.

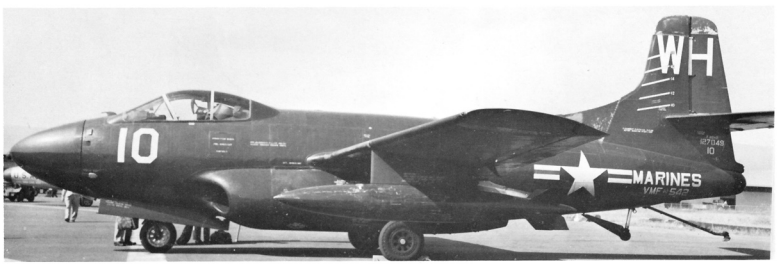
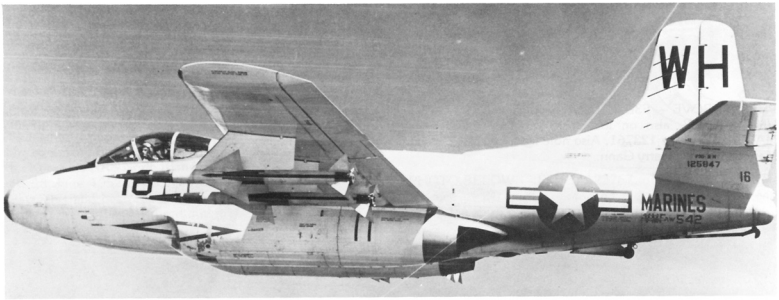
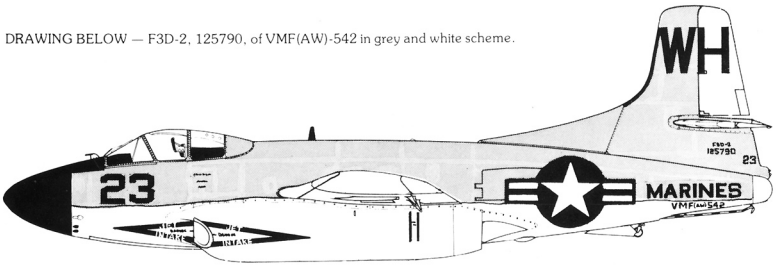


PHOTO AT LEFT — F3D-2, 125798, Collect Air photo. PHOTOS BELOW: TOP — Often used photo of F3D-2M, 125847, with Sparrow missiles and VMF (AW) - 542 designation on tail in 1957. Note heavy exhaust stain that shows up on the grey and white scheme. Marine photo. BOTTOM — F3D-2M, 125872, in flight with speed brake extended. This beautiful photo was taken by Clay Jansson.



DRAWING BELOW — F3D-2, 125790, of VMF(AW)-542 in grey and white scheme.



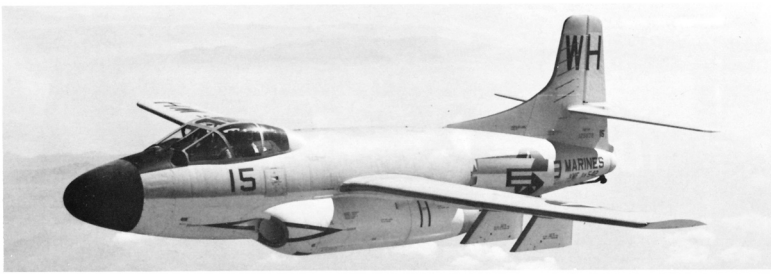


PHOTO ABOVE — F3D-2M, 125872, of VMF (AW) - 542. Note elongated nose of this model. Rescue arrow is red. Marine photo via Harry Gann. PHOTO BELOW — Same aircraft banking away. This excellent photo by Clay Jansson shows off all of the Skyknight's belly detail.

VMF (N) 513

The Flying Nightmares of VMF-513, became a night-fighter squadron on 1 Aug. 1947. Flying both F4U-5N Corsairs and F7F-3N Tigercats, VMF(N)-513 embarked aboard the U.S.S. General A.E. Anderson for Japan on 14 July 1950. The squadron arrived in Japan on 31 July 1950 in preparation for operations in Korea.

What follows is a chronology of the squadrons movement during the Korean War.

3 Aug.	1950	Moved to Itami Air Base, Japan, joined 1st. MAW.
7 Aug.	1950	Moved to Itazuke Air Base in preparation for operations in Korea.
8 Oct.	1950	Returned to Itami Air Base in preparation for the Wonsan operations.
12 Oct.	1950	Moved to Kimpo Airfield, Korea.
16 Oct.	1950	Moved to Wonsan Airfield, Korea.
1 Dec.	1950	Moved to Yonpo Airfield, Korea.
15 Dec.	1950	Moved Itami Air Base, Japan.
18 Jan.	1951	Moved to K-9 Airfield, Pusan, Korea.
26 Feb.	1951	Moved to K-1 Airfield, Pusan, Korea.
9 Dec.	1951	Moved to K-18 Airfield, Kangnung, Korea.
11 Apr.	1952	Moved to K-8 Airfield, Kinsan, Korea.
6 Jun.	1953	Moved to K-6 Airfield, Pyong Taek, Korea.

As stated previously, VMF(N)-542 handed its F3D Skynights over to VMF (N)-513 in June of 1952. However, it was not until 1 Nov. 1952 that the Skynights of VMF(N)-513 became fully operational. This delay was due to an initial parts shortage and a shipment of inadequate radio tubes for the radar.

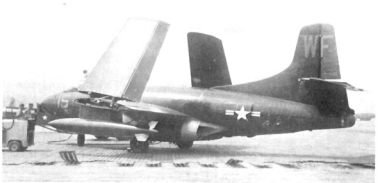
The squadrons twelve Skynights were soon providing night escort for Air Force B-29 raids. Throughout the remainder of the war the Air Force never lost a B-29 on a F3D escorted mission, even though the Migs attempted to draw off and eliminate the F3D threat. A single Mig would fly across the bomber formation hoping to draw a Skynight away. Once the F3D was drawn from the bombers it would be jumped by two other Migs. This ploy, however, was not successful as the Migs would show up on the Skynights tail warning radar and the F3D could disengage before the Migs reached firing range.

Skynights were not just limited to night intercepts. On 27 March 1953, a section of Skynights made a predawn attack on Chinese artillery positions using conventional bombs. Again, that same evening, the Skynights continued the attack along with Corsairs from VMA-112 and VMA-323. This type of attack was again carried out on 10 April.

By late May, 1953 VMF(N)-513s strength was brought up to 24 Skynights, and the last of the Tigercats were phased out of service. Additionally, four Skynights and crews from VC-4 arrived aboard the U.S.S. Lake Champlain for temporary duty with VMF(N)-513.

During the last month of the war VMF(N)-513 lost two crews to unknown causes. On 2 July, one of the VC-4 aircraft disappeared and on 4 July, Capt. Thistlethwaite and Staff Sergeant W.H. Westbrook were also lost.

PHOTO BELOW — F3D-2, Korea in Sept. 1954, crewed by 2nd. Lt. Donald Harvey and S. Sgt. Donald Lambert. Blue with red codes and light grey nose wheel. Marine photo via Harry Gann.



PHOTOS: TOP TWO — F3D-2, 124620, on steel matting in Korea. See back cover for color profile. Note, in the photos, the extensive weathering of the aircraft through constant use. Collect-Air photos. MIDDLE — F3D-2, 127030, at K-3 Korea, in Sept. 1953. This aircraft retained the blue scheme with the red 9 and WF. Note separation on the 9. Pilots helmets are gold. Photo by Harold Caldwell via Picciani Aircraft Slides. BOTTOM — F3D-2, 127027, in flight over Japan. Aircraft is blue and carries VMF(N)-513 designation. Douglas photo via Harry Gann.

KILL RECORD FOR VMF(N)-513

30	Jun.	'51	Capt. Edwin V. Long	F7F-3N	1 PO-2
12	Jul.	'51	Capt. Donald Fenton	F4U-5NL	1 PO-2
23	Sept.	'51	Maj. E. Van Grundy	F7F-3N	1 PO-2
7	Jun.	'52	Lt. John Andre	F4U-5NL	1 YAK-15
3	Nov.	'52	Maj. Wm. Stratton Jr.	F3D-2	1 YAK-15
8	Nov.	'52	Capt. Oliver Davis	F3D-2	1 MIG-15
10	Dec.	'52	Lt. Joseph Corvi	F3D-2	1 MIG-15
12	Jan.	'53	Maj. Elswin Dunn	F3D-2	1 MIG-15
28	Jan.	'53	Capt. James Weaver	F3D-2	1 MIG-15
31	Jan.	'53	Lt. Col. Robert Conley	F3D-2	1 MIG-15
	Mar.	'53	Lt. Col. Robert Conley	F3D-2	1 MIG-15

PHOTO BELOW — F3D-2, 127064, VMF(AW)-513, at Yokota AB, Japan, May 1958. Grey and white scheme with red intake chevrons and black radome tip. Photo by Fritz Fredrick via Picciani Aircraft Slides.

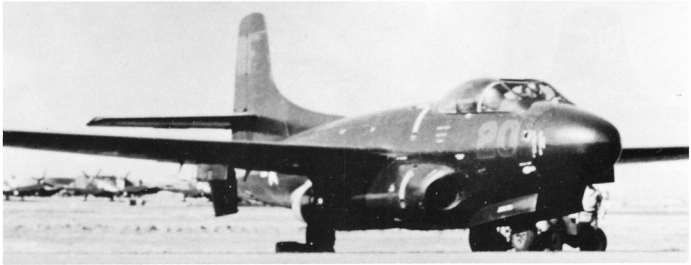
CO LIST FOR VMF(N)-513 DURING KOREA

Lt. Col. John Burnett	to 11 Jun. '52
Col. Peter Lambrecht	to 19 Jun. '52
Lost in action.	
Lt. Col. Jack C. Scott	to 9 Sep. '52
Lt. Col. Homer Hutchinson Jr.	to 20 Jan. '53
Lt. Col. Robert F. Conley	to 6 May '53
Lt. Col. Ross S. Mickey	to 10 Jul. '53
Lt. Col. Robert L. Conrad	from 10 Jul.

Note that pilots of VMF(N)-513 were rotated after 60 missions hence the short command periods.

In 1959 VMF(N)-513 became a guided missile squadron when VMF(N)-542 handed its F3D-2Ms to the Flying Nightmares.

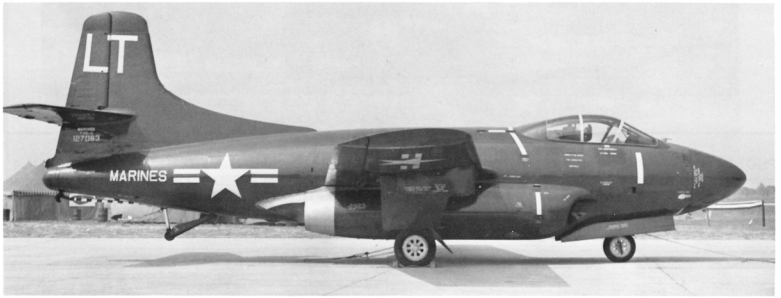
PHOTO BELOW — Another VMF(N)-513 F3D-2, photographed in Korea, again with the red codes 20/WF. Photo by Cornbise via A. Pelletier.



VMF(N)-531

VMF(N)-531 was the first Marine night fighter squadron, commissioned on 16 Nov. 1942. By 1952 the squadron was home based at MCAS Cherry Point, where it was attached to MAG-24. In Jan. 1952 the squadron received its first F3D-1. Like the other VMF(N) squadrons, 531-flew a mixed bag of F7F and F3D aircraft. This continued until enough Skynights were available and the Tigercat was retired.

PHOTO: TOP — F3D-2, 127063, of VMF(N)-531 in 1953. Photo by Dr. Olson via Clay Jansson. BOTTOM — Marine photo of F3D-2, 124653, in flight.



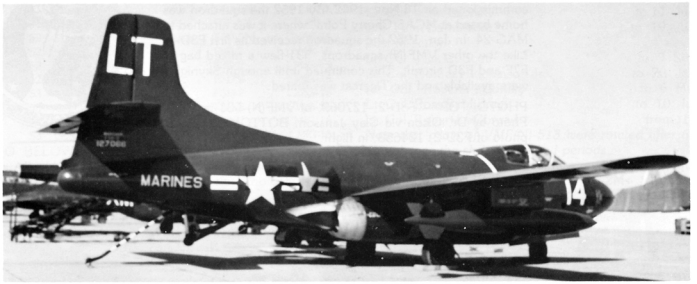
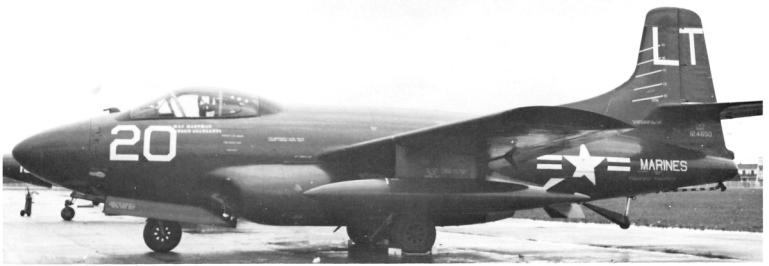
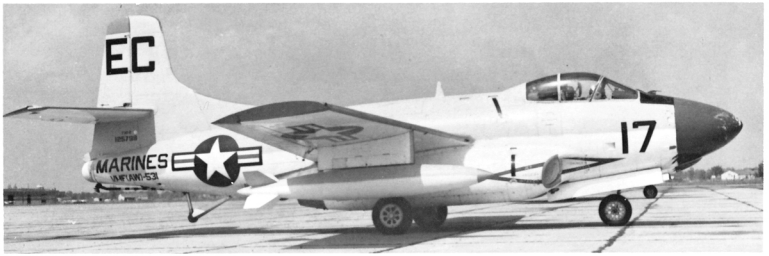


PHOTO: TOP — F3D-2, 127066 of VMF(N)-531. Note speed break is open and star & bar is painted on the inside of the speed break cavity. Photo by Dave Menard. MIDDLE — F3D-2, 124650, in Sept. 1952. Names under canopy are Maj. Hartman, TSGT Giansanti. photo by Balogh via W. T. Larkins. BOTTOM — F3D-2, 125798, in 1958 with the grey and white scheme. Note VMF (AW)-531 and new tail code of EC. Photo by Balogh via Clay Jansson.



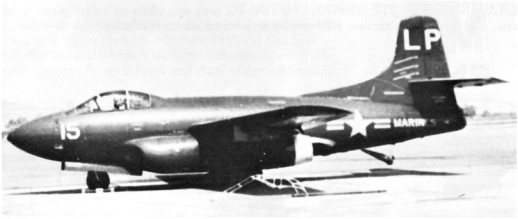


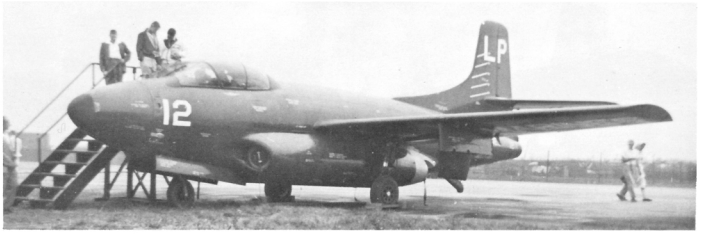
VMFT(N)-20

Most sources list VMFT(N)-20 and VMFT(N)-10 as flying the Douglas Skynight. I have been unable to locate, however, any official or photographic proof of the existence of Skynights in VMFT(N)-10.

VMFT(N)-20s tail code changed from LP to BP in 1957.

PHOTOS: ABOVE — F3D-2, 125818, blue with all black radome. Photo by Balogh via Menard. MIDDLE — Another VMFT (N)-20 F3D-2, # unknown. Nicolaou Archives. BOTTOM — F3D-2, 125808, in 1955, note black radome tip. Photo by R. Esposito via R. Besecker.





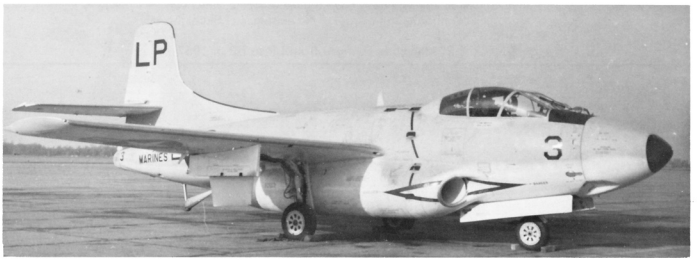
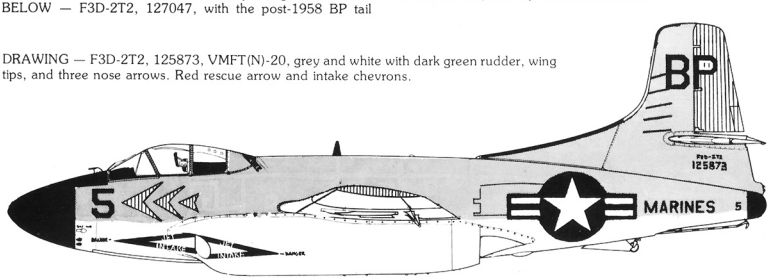
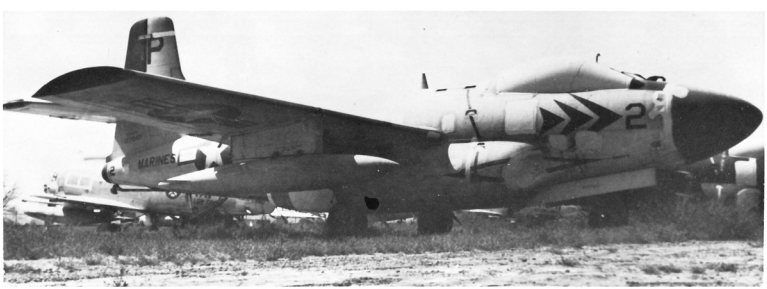


PHOTO: TOP — F3D-2T2, 127084, in grey and white scheme. Black lettering, step stripes, radome tip, anti-glare panel and fin de-icing. Natural metal leading edges and engine intake lip. Red intake chevrons. Photo by Balogh via Menard. BELOW — F3D-2T2, 127047, with the post-1958 BP tail code. Colors same as above except for green rudder, wing tips and arrows on nose. Note windshield wiper on this aircraft and the one above. Photo taken at Litchfield Park on 21 Mar. 1960. Marine photo by Wm. L. Swisher.

DRAWING — F3D-2T2, 125873, VMFT(N)-20, grey and white with dark green rudder, wing tips, and three nose arrows. Red rescue arrow and intake chevrons.





THE F3D-2Q AND VMCJ-1, VMCJ-2 AND VMCJ-3

As related earlier, 55 F3D-2 aircraft were converted to F3D-2Q Skynights. All manner of electronic gear was packed into the F3D airframe to enable the plane to locate and neutralize hostile radar transmissions. In this role the F3D-2Q (EF-10B) operated in VMCJ-1, VMCJ-2 and VMCJ-3 along side the photo versions of the F9 Cougar and the F8 Crusader.

A typical VMCJ mission would consist of the Skynight flying a straight line course across the suspected radar station's position. During this flight, the sensitive electromagnetic signal receiver and the signal analyzer would reveal the approximate size, type and range of the transmitting station. Upon landing, the information received would be analyzed and the approximate location of the station could be pinpointed.

The information gleaned from the Skynights' flight would then be given to the photo pilots so that they could fly out and obtain the station's exact position.

Once the exact position of the hostile radar station had been fixed, it could be actively or passively neutralized, depending on the operational circumstances. If the active negation of the station was required, an attack or fighter squadron could be dispatched to do the job. If the passive neutralization was opted for, the Skynight would once again be called in to act. The F3D would then effect this neutralization in one of two ways; either through the direct use of opposing electronic signals or through the dropping of chaff (tin or aluminum scrapings).

VMCJ-1 took "Willie the Whale" to war on 17 April 1965, when the squadron deployed six EF-10B jets to Da Nang from Iwakuni. Although the Skynights' mission was to jam enemy radar while escorting air strikes into North Viet Nam, the aircraft were soon attacking ground forces on their return flights. These homeward attacks on targets of opportunity, pinpointed by their sophisticated ECM equipment, proved very costly to the F3D (F-10) community. Such attacks were quickly outlawed by command, as the Skynights did not have ejection seats or sufficient power to exit the target area at a high rate of speed.

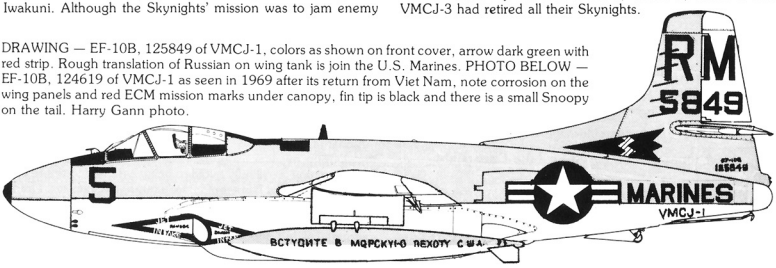
Commanded by Lt. Col. Otis W. Corman, VMCJ-1 operated the EF-10B at 300% normal utilization during May and June of 1965. Because of lack of spares, VMCJ-1 was restricted from July onward to a 200% utilization rate or 60 hours per plane per month. To achieve this reduced utilization rate, the Skynights were limited to support Air Force and Navy operations in only high threat areas, primarily the SA-2 missile complex.

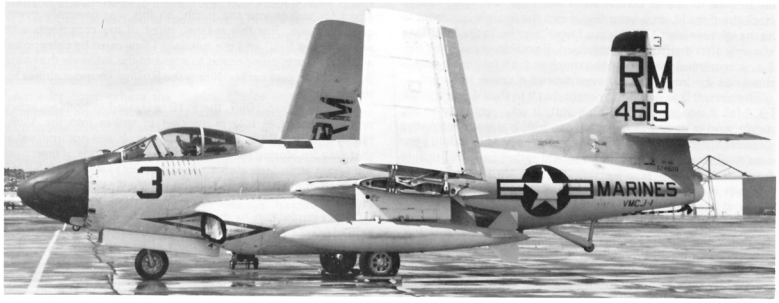
A major contribution was made by the squadron's "Whales" during Rolling Thunder missions over North Vietnam. During these missions, VMCJ-1 provided support in the ECM and electronic intelligence (ELINT) roles under the code name Fogbound.

VMCJ-1 "Whales" finished out 1965 with 791 missions in support of strikes over North Vietnam and Laos. This workload was accomplished with a squadron strength of 29 officers and 222 enlisted men.

In 1969, the Skynights of VMCJ-1 would be replaced by the A6A Intruder. By the end of 1970, VMCJ-1, VMCJ-2 and VMCJ-3 had retired all their Skynights.

DRAWING — EF-10B, 125849 of VMCJ-1, colors as shown on front cover, arrow dark green with red strip. Rough translation of Russian on wing tank is join the U.S. Marines. PHOTO BELOW — EF-10B, 124619 of VMCJ-1 as seen in 1969 after its return from Viet Nam, note corrosion on the wing panels and red ECM mission marks under canopy, fin tip is black and there is a small Snoopy on the tail. Harry Gann photo.





FLYING THE WHALE

PHOTO ABOVE — EF-10B, 125810 of VMCJ-1 in 1966 aboard a transport carrier, note arrow on tail has a thin red border around it. Photo Candid Aero-Files.

1968-69 as remembered by Jake Cartwright.

The aircraft was old and tired when I flew it in 1968 & 1969. It was limited to 300 kts., 90° of bank and 3 g's. We were also limited to two touch & go landings and one full stop per flight. To maintain any pressurization at altitude, you normally had to pad the escape hatch (laundry chute exit) with your charts. Starting the engines was rather exciting. You couldn't move the throttle to idle at certain RPM like most jets. You had to crack the throttle, stick your finger into the throttle quadrent to hit the ignitor switches with your finger, and bring the throttle to idle only after the EGT had stabilized. If your finger was too big, (i.e. you opened the throttle too much to get it in) flames would shoot out the intake as you experienced a rather hot start!

The aircraft flew okay, but comparing it to the F4 or even the F9, I felt it was an old lady's aircraft. It was very easy to fly, stabile, and in its day must have been fun. But since acrobatics were prohibited, and the ECM mission was boring, it didn't endear itself to a 24 year old who would rather be flying upside down or at 500 kts.

It was a great cross country bird and certainly raised eyebrows at Air Force bases, where aircraft of its vintage were in museums. Also, it ran on AVGAS, and the Air Force was sure the Lt. was screwing up when I asked them to fill it up with that.

We had a Major in the squadron who loved to take it on a cross country to Arizona during the dove hunting season. He'd pack all his gear in it and put his hunting dog in the right seat and charge off.

1968-69 as remembered by Roger McMullin

My tour in the Marine Corps and VMCJ was fairly typical of Marine aviators at that time — one year in Cherry Point, one year in Viet Nam and one year back in the states prior to discharge.

During my first assignment to a fleet squadron following flight training, I skillfully avoided being assigned to the F-10. It was not until Viet Nam that I finally ran out of excuses. I transitioned myself in-country and subsequently flew the airplane about 300 hours during my one year tour. Interestingly enough, all but about ten of these hours were flown at night.

By the time I transitioned into the F-10, the airplane was being used in support of passive ECM missions off the coast of North Vietnam and over Cambodia. The bombing halt was in effect for strikes into the north, so this was generally pretty calm business. For this reason, most of my comments with regard to the F-10 and the missions I flew must be categorized as anecdotes in comparison to some of the missions that were flown a few years earlier during the Rolling Thunder strikes into the north.

From 1966 to 1969, the F-10 was used in both an active and passive ECM role in support of strikes into the Vinh, Hanoi and Red River Valley complexes. It was not unusual at that time for Marine pilots to orbit for long periods of time over the target at an indicated air speed of 250 knots, with SAMS going off in every direction as the attacked aircraft worked the targets.

My introduction to the F-10 came in 1969 while serving with MAG-11 at Da Nang. We were flying F-4s and they were short of F-10 pilots so a handful of us volunteered. At that time, the F-10s were flying a continuous patrol from six o'clock in the evening until six o'clock in the morning with one airplane relieving the other on-station. Although this may not

seem like much of a challenge, I can't remember that we ever missed a flight due to a mechanical problem or the weather, even during the monsoon season when the flying conditions were really grim. This formidable record was achieved in an airplane that was over twenty years old and whose primary attitude instrument was the turn needle, with a back-up altitude gyro placed in the lower right hand corner of the instrument panel. Anyway, after several long months in Da Nang, we were all pleased to have an opportunity to get in two or three more hours of flight time each night, supplementing the daily missions we were getting in the F-4s.

One of the reasons we all enjoyed the F-10 so much is that we had been products of a rather technical training program in the F-4. In contrast, when it came time to check out in the F-10, we all just crawled around the airplane, took a few notes from the old hands and went flying. We all considered it shades of World War II. As I recall, the entire checkout procedure consisted of one airplane start, one taxi, one daylight ride and then a solo launch into low ceilings and driving rain. In retrospect, I believe that the whole procedure exemplified both the best and the worst of Marine Corps aviation.

There was no training material available on the F-10, so there was always a lot of buttons and switches whose function remained a mystery to us. It was not uncommon to hear a pilot remark that in desperation he had thrown a certain cockpit switch following the loss of an inverter or generator and with some amazement indicate that he had regained a modicum of cockpit lighting. Of course whenever this happened, the rest of us wrote it down in our little 2 x 3 notebook so that we would have this pearl of wisdom available if we ever found ourselves in a similar situation. Being aggressive Marine fighter pilots, we all thought this lack of information on the F-10 gave the whole scheme a certain aura of careless abandon and took great pride in our circumstance, if for no other reason than it clearly differentiated us from our Air Force counterparts across the field.

Preflight of the F-10 always provoked an internal struggle between professionalism and realism. Professionally, we all knew that a thorough preflight was simply good aeronautical procedure. Realistically, there was no way that a professional aviator could preflight an F-10 and fly the machine in good conscience. Therefore, we concentrated our attention on certain areas which were proven to constitute a significant hazard to flight.

To this day, I still claim that I can spot a pilot that flew F-10s by the way he examines a tailpipe on preflight. As you probably know, the F-10 burned AVGAS which literally raised hell with the hot section of the engine. For this reason, it was common for cracks to appear in the turbine wheels which were large enough to be visible with the naked eye at night. Blending of knicks and cracks in a compressor section is common, even in commercial aircraft, but the F-10 is the only airplane I have ever flown where the turbine blades were blended in semi-circles the size of a quarter. The real concern over the hot section was that there was about a 50% chance that any turbine blade that decided to take leave of the disk would eventually find its way into the fuselage fuel tank which was loaded with 115/145 AVGAS. The result of this maneuver was commonly colorful.

Our Operations Officer, was always harping on us Lieutenants for our cursory preflight of the F-10. Then one day, he taxied out of the revetment, tried to make a turn using differential braking (the only method of steering) and ran into the blast fence due to lack of brakes. Subsequent investigation revealed that the mishap was not due to a brake failure, but rather that the brakes had been removed by maintenance for use on another airplane. The jacks were needed so the main landing gear wheels had been reinstalled and the airplane placed back on the ground. After that, we didn't hear any more comments about our preflights.

Even such a simple procedure as engine run-up required special attention in the F-10. Both engines were run-up simultaneously and held at full power for a period of two to three minutes prior to releasing the brakes for takeoff. This allowed the EGT to increase 10 to 15 degrees which produced about another 1% of engine RPM. While this increase would be negligible in most airplanes in the F-10, it really constituted the difference between executing a successful take-off or merely conducting a high speed taxi down 10,500 feet of runway.

The F-10 always needed every inch of the runway for takeoff. The SOP was to taxi down onto the overrun before aligning the aircraft with the runway to make use of this critical extra distance. Since the overruns were generally made of asphalt, the engine run-up procedure described earlier resulted in large patches of melted tarmac, much to the consternation of the Air Force Airfield Operations Officer. We justified this wanton disregard for Air Force property on the basis that the Ops Officer lodged his complaints from an air conditioned trailer, while we were faced with the more immediate and personal problem of getting a grossly underpowered airplane off the ground.

The normal configuration for passive ECM missions was one full drop tank and one jammer pod. The weight of the full drop tank placed the airplane 1,000 lbs. outside of the maximum allowable asymmetric limit for takeoff. Once the fuel was consumed, the limit was again exceeded in a like amount, but on the opposite side for landing. This situation necessitated the use of some rather specialized procedures for both takeoff and landing.

Once the brakes were released, the airplane, in the absence of any crosswind, would naturally try to veer into the heavy drop tank. Any use of asymmetric braking to maintain directional control would degrade the performance of the airplane to the extent that it simply would not get airborne in the runway remaining. For this reason, takeoffs were often commenced with the airplane cocked relative to the runway centerline so that the resulting gentle swerve brought the airplane parallel to the runway, just about the time the rudder would become effective. From that point, judicious use of rudder, aileron and spoiler was very effective in maintaining directional control.

Standard procedure in most airplanes is to rotate the aircraft to a takeoff altitude at a prescribed airspeed and then wait until it flies off the ground. In the case of the F-10, an early rotation, with the subsequent increase in induced drag, would result in an immediate loss of 10 knots of airspeed which would never be regained, even if the runway was infinitely long. For this reason, we always held the nose down in an attempt to maintain a zero degree angle of attack, executing the rotation on the basis of runway remaining rather than airspeed achieved. Actual flight usually commenced when the Whale bounced over the long-field arresting gear, as though this final insult provided the impetus to make the machine fly. The requirement for the wings to produce lift, with the associated increase in induced drag, knocked 20 knots off the airspeed which caused the actuation of the stick shaker. It was not uncommon to fly several minutes after takeoff with an immeasureable rate of climb, no increase in airspeed and the stick shaker going the whole time.

The asymmetrical load caused by the jammer pod and empty drop tank presented another problem on landing. Control about the longitudinal axis was achieved by conventional ailerons supplemented by non-proportional spoilers. By this I mean, the spoilers did not come into use until stick deflection exceeded a certain value at which point the spoiler deployed fully. With the drop tank empty and the heavy jammer pod on the opposite wing, the combination of trim and stick position was just at the threshhold point where further attempts to lift the heavy wing resulted in the full deployment of the spoiler and a significant overbank. Any experienced F-10 pilot, and by this I mean one with more than one flight in the airplane, soon learned to keep thewings level with generous applications of rudder.

As you probably know, the F-10 had a rather unusual escape system comprised of a small hatch in the aft cockpit bulkhead which enabled the crew members to slide down through the fuselage and out the belly of the airplane during egress. There were no ejection seats. One problem resulting from this rather odd design was that the crew seats were designed to break-away in a certain manner to facilitate the entry into the escape slide. Due to the age of the airplanes and the lack of spare parts, it was very common to have one or both seats perform the break-away maneuver on their own volition. The pilot would then be faced with the prospect of flying a three hour mission in a slumped position while sitting on the floor. The lowered seat height placed the stick grip at about eye level and, of course, added immeasureably to our instrument flying skills.

The crew member that really did the job in the F-10 was the ECMO. These guys were an interesting and colorful lot. Most of them were originally enlisted men and scope operators during the initial deployment of the F-3D. As the first F-4s started coming into the Marine Corps, they transitioned into fighter squadrons and were promoted to warrant officer. As the war expanded, the air-to-air mission of the F-4s became less emphasized as the air-to-ground mission became more important. The RIO's, with all their technical background and radar training, tired very quickly of counting backwards as the altimeter unwound during a 45 degree bomb pattern. Many of them subsequently put in for transfers to VMCJ and became specialists in ECM, flying the F-10 and EA-6B. They continued to be promoted in rank with some of them making Major or Lieutenant colonel, only to be reverted to Staff Sergeant following the winddown after the War.

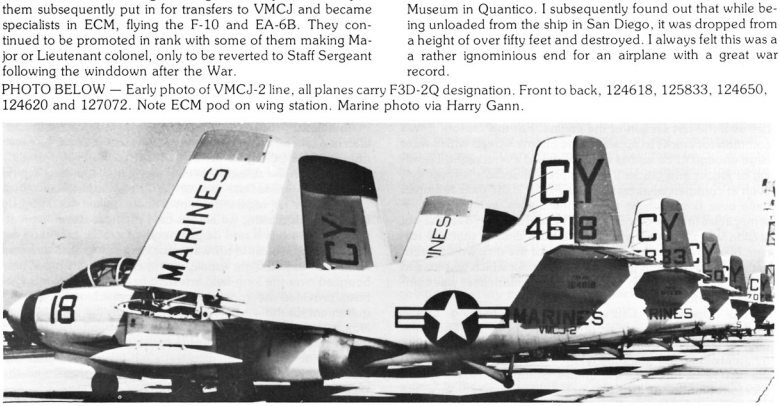
During my tour, most of the missions were fairly routine; the ECMO would sit there for three hours with his head in the scope watching and listening for "Fansong" radars. I often suspected they were just catching up on much needed sleep. On the other hand, pilots were feverishly tuning the ARN—6 Low Frequency ADF in an attempt to tune in the Armed Forces Viet Nam network. this unsophisticated, but effective piece of navigation equipment, was totally new to us pilots weaned on inertial navigation sets, UHF radios and channelized ADF receivers.

On the serious side, the F-10 was a very old airplane with a number of mechanical problems. It had been restricted to one positive and zero negative G's as an operating envelope for several years. The instrumentation and lighting was marginal, with much of it undependable or inoperable. Even under these circumstances, the cadre of pilots that flew the F-10 managed to achieve an enviable record of on-station reliability in adverse weather, month in and month out. During my year in Viet Nam, I don't recall ever having an F-10 mission cancelled for weather. During the Monsoon season, days would go by when the fighter and attack squadrons would stand-down, but we would continue to fly. I attribute this performance to the sound aerodynamic characteristics of the F-10 and the esprit de corps of the cadre of pilots who flew her.

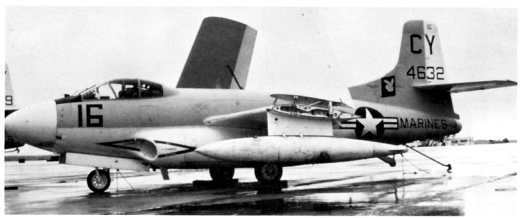
As a young, aggressive Marine aviator, I was always proud of the fact that I got to fly F-4s, the hottest airplane in the inventory at the time. Older now, I look back on my experiences in the F-10 with a certain fondness. Without question, it improved my instrument flying to a degree that never would have been achieved in any other tactical airplane. Beyond that, it also taught me that you don't necessarily have to know everything about an airplane to fly it. Keeping the big picture in mind is often much more valuable than knowing technical details which border on trivia.

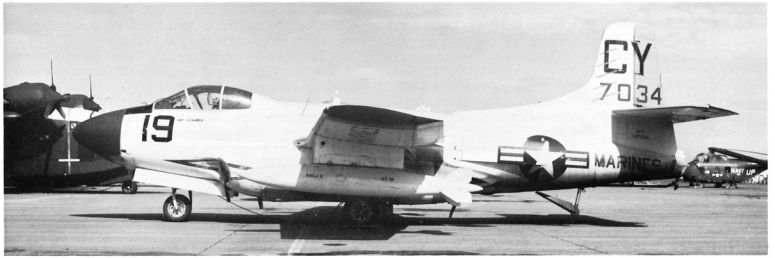
As a footnote, I was the pilot of one of the last two F-10s ferried out of Viet Nam to the Phillipines. By this time, virtually nothing in the aircraft worked, due to the lack of spare parts and maintenance attention. Using the wet compass, we found Cubi Point and delivered the aircraft to the Navy. The aircraft was slated to be enshrined in the Marine Corps Aviation Museum in Quantico. I subsequently found out that while being unloaded from the ship in San Diego, it was dropped from a height of over fifty feet and destroyed. I always felt this was a a rather ignominious end for an airplane with a great war record.

PHOTO BELOW — Early photo of VMCJ-2 line, all planes carry F3D-2Q designation. Front to back, 124618, 125833, 124650, 124620 and 127072. Note ECM pod on wing station. Marine photo via Harry Gann.



PHOTOS: TOP-EF-10B, 125833, of VMCJ-2 in Feb. 1965. Playboy bunny emblem is black with red border, fin tip black. Candid Aero-Files photo. RIGHT — Side view of EF-10B, 124632. Picciani Aircraft Slides. BOTTOM — Same aircraft on 11 Oct. 1968, on VMCJ-2 flight line at MCAS Cherry Point. Note detail of nose gear doors and jet intake. Marine photo.





PHOTOS: TOP - F3D-2Q, 127034, of VMCJ-2, in early color scheme. See back cover for color profile. Name under canopy CAPT. C. E. DANIELS. Harry Gann photo. MIDDLE — EF-10B, 125818, note ECM arrieals and rigging on fuselage. Two red ECM lightning bolts on nose. Interair photo. AT LEFT — EF-10B, 124663, with bunny on fin and black fin tip. Picianni Aircraft slides. BOTTOM — EF-10B, 127047, of VMCJ-2, on 18 May 1963 with bunny on fin. USN

PHOTOS: TOP—EF-10B, 127034, of VMCJ-2. Excellent photo taken on 8-6-63. Note exposed radar and how nose-cone folds upward. Ammo feed door is open as is oil filler cap and escape chute hatch. Also note the ECM wire rigged above the fuselage. USN photo by R. Allen. BOTTOM — F3D-2, 124620, of VMCJ-3. This was the first aircraft to be converted to a F3D-2Q. Photo taken in 1955 and is in the then current blue scheme. Note that radome is open. Photo Jansson.

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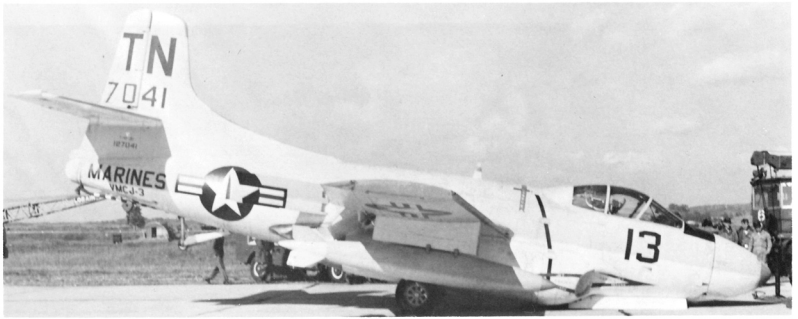
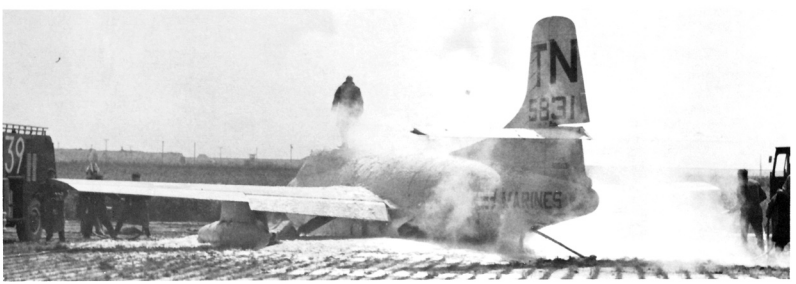
PHOTO AT RIGHT — EF-10B, 124645, of VMCJ-3, El Toro, Calif. Note canvas canopy cover. Long fuselage rescue arrow is red. Picianni Aircraft slides.

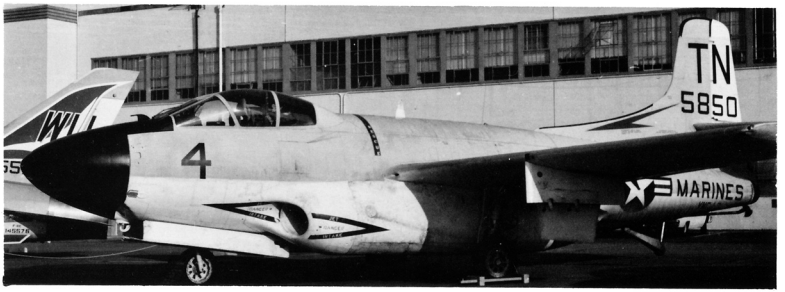
TN
7060
MARINES
10
TN
5850
MARINES
17
TN
5806
MARINES
15
TN
4596
MARINES
16

PHOTOS: ABOVE — Formation flight of F3D-2Q Skynights from VMCJ-3 on 12 May 1958. 127060, 10/TN — 125850, 17/TN — 125806, 15/TN and 124596, 16/TN. Marine photo. BOTTOM — Inflight photo of the ECM team F3D-2Q, 124645, and RF-8A of VMCJ-3. Clay Jansson photo.



MISHAPS: TOP — F3D-2Q, 127041, on the runway at El Toro with nose gear failure. Clay Jansson photo. MIDDLE — F3D-2Q, 125814, comes to grief in the desert. Note how fuselage has separated intothree pieces. The Skynight was definitely a rugged lady. Air Force photo via Clay Jansson, taken on 12 March 1960. BOTTOM — F3D-2Q, 125831, after overshooting the runway at El Toro. Clay Jansson photo.

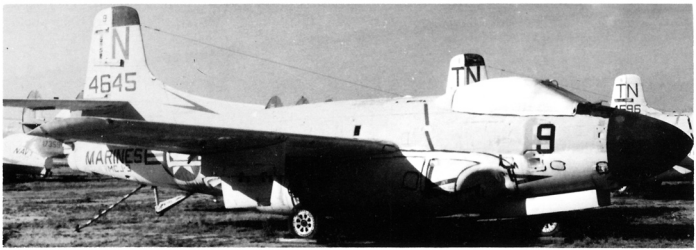




PHOTOS: TOP — EF-10B, 124619, of VMCJ-3 at MASDC. Note this is the same aircraft as on page 52. Harry Gann photo. MIDDLE—EF-10B, 125850, of VMCJ-3, on 30 Oct. 1965, at NAS Alameda. Photo by W.T. Larkins. BOTTOM — EF-10B, 124596, of VMCJ-3 at El Toro. Harry Gann photo.

F3D-2Q, 124596, in flight from VMCJ-3. Note VMCJ—1 style green arrow on fin and location of upper wing codes. Photo by Clay Jansson.

F3D-2Q, 125793, of VMCJ-3, in typical Japanese winter camouflage — snow. Photo by Clay Jansson.



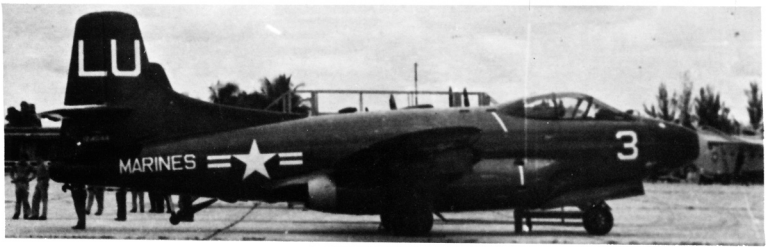
EF-10B, 124645, of VMCJ-3, in the twilight of its life. MASDC, 1-24-73, green arrow on fin. Photo by B. Knowles via A. Pelletier.

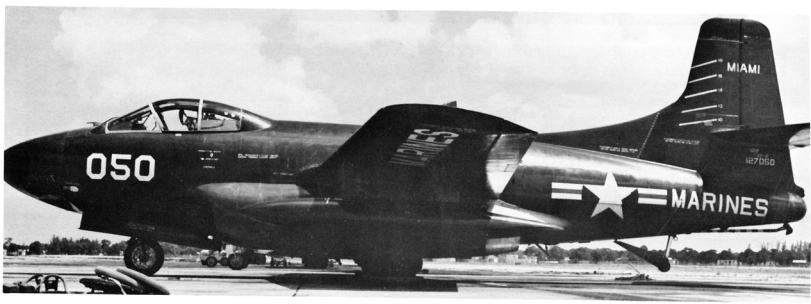
End of the line for the "Whale", MASDC, April 1976. VMCJ-2, 125850, in foreground, followed by VMCJ-3, 124620. Photo from N.M. Williams.

PHOTO ABOVE — EF-10B, 124619, of VMCJ-3 on deaths row MASDC 1972. Arrow green, fin tip white. Photo by B. Knowles via A. Pelletier.

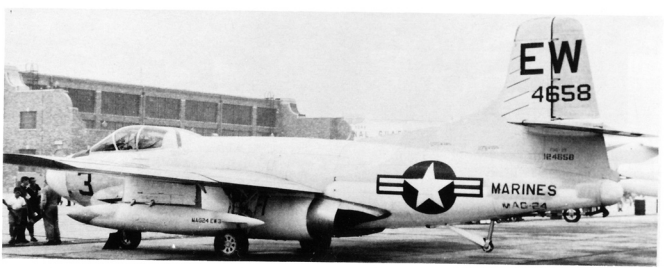
Today few Skynights remain. One EF-10B, 124618, at the USMC Museum, Quantico (see page one). One F3D-2T2, 124626,VF-121 at the Pima County Air Museum, Tucson (see page 37). One XF-3D1, 121458, at the Naval Air Museum, Pensacola.One F-10B, 125870, in bogus markings of NAS Los Alamitos (photo by author below). This aircraft was dedicated in 1964 as a monument to our Korean War veterans, and is located in Lakewood, Calif. In addition to these Skynights, L. Webster of the Bradley Air Museum has recovered the wreckage of two F3D-2s. The wreckage totals some 2 tons and was recovered in the early 1970's from the crash sites. Both aircraft were on test flights following overhaul at NAS Quonset Point and were unpainted. The first F3D-2 went down on 10 June 1955, following a port engine flame out which developed into a fire and subsequent explosion. The crew bailed out safely with only slight injuries. The second Skynights crash occurred on 11 July 1955, when the crew experienced control difficulties. Again the crew bailed out safely, this time with no injuries.

PHOTO BOTTOM — F-10B, 124630, at China Lake on 2 July 1964. F-10 taxing out to test Shrike missile. Plane is white with red fin, wing tip, and nose strip. This F-10 and 124598 and 125807 are still operated today by Raytheon, see pages 79-82. USN photo by R. Allen.



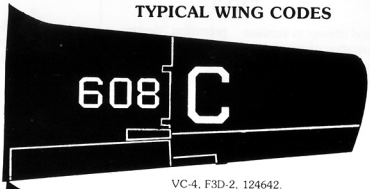


MARINE UTILITY SQUADRONS. PHOTOS: TOP — F3D-2, 124644, of H&HS-3, 3rd. Marine Aircraft Wing, MCAS Miami, during the early 1950s. Marine photo. MIDDLE — F3D-2, 127050, SOS Miami. Photo by Clay Jansson. BOTTOM — F3D-2T, 124658, of MAG-24. Grey and white scheme with day-glo nose flash and wing tank flash. 1959 photo via Candid Aero-Files.



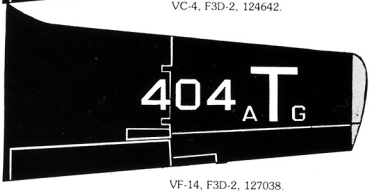
TYPICAL WING CODES

VC-3, F3D-2, 124654.

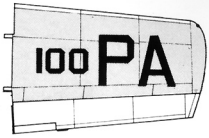


VC-4, F3D-2, 124642.

VMF (AW) — 542, F3D-2, 125790.

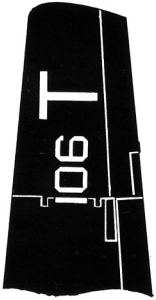


VF-14, F3D-2, 127038.



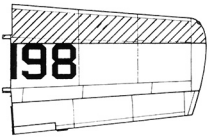
VF (AW) — 3, F3D-2, 124603.

FAWTULANT, F3D-2



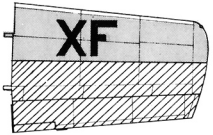
VF-11, F3D-2.

VC-33, F3D-2.

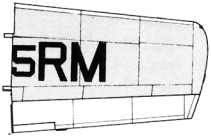


VF-121, F3D-2T2, 124617.

VX-5, F3D-2.



VX-4, F3D-2T2, 124638.



VMCJ-1, EF—10B, 125849.

USMC SKYNIGHT ALLOCATIONS 1951-1957

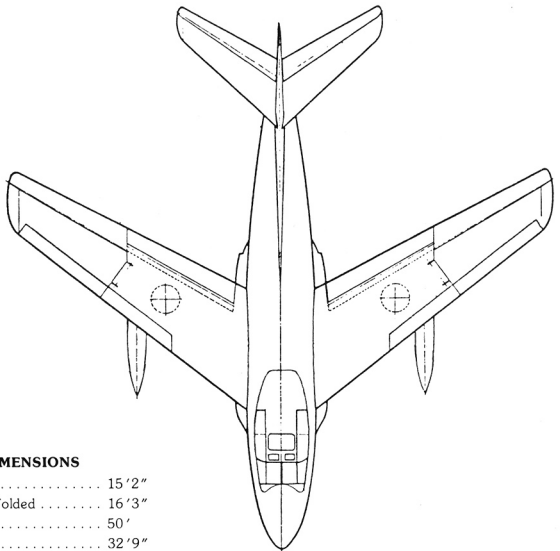
Information via W. T. Larkins

15 July 1951			
VMF (N)-542	7 F3D-1	WH	El Toro
15 July 1952			
VMF (N)-542	11 F3D-2	WH	El Toro
VMF (N)-513	12 F3D-2	WF	Santa Ana
VMF (N)-531	4 F3D-1,2 F3D-2	LT	Cherry Point
15 July 1953			
VMF (N)-542	24 F3D-2	WH	El Toro
VMF (N)-513	21 F3D-2	WF	El Toro
VMF (N)-531	24 F3D-2	LT	Cherry Point
VMC-3	1 F3D-2	TN	El Toro
VMFT(N)-20	12 F3D-2	LP	Cherry Point
HEDRON FMF PAC	2 F3D-2	W2	El Toro
HEDRON 12	3 F3D-2	WA	
MAMS-24	4 F3D-2	AW	Cherry Point
SOS-3	1 F3D-2	LU	Miami
15 July 1954			
VMF(N)-513	24 F3D-2	WF	K-6, Korea
VNF(N)-531	24 F3D-2	LT	Cherry Point
VMFT(N)-20	12 F3D-2	LP	Cherry Point
H&HS	1 F3D-2	AZ	El Toro
H&HS-27	2 F3D-2	B2	Cherry Point

UNIT	NO. & TYPE	TAIL CODE	LOCATION
H&HS—24	2 F3D-2	EW	
SOES	1 F3D-2		Miami
30 June 1955			
VMF(N)-542	20 F3D-2, 6 F3D-2M	WH	El Toro
VMF(N)-513	24 F3D-2	WF	NAS Atsugi
VMF(N)-531	25 F3D-2	LT	Cherry Point
VMC-3	2 F3D-2	TN	El Toro
VMFT(N)-20	12 F3D-2	LP	Cherry Point
SOES	1 F3D-2		Miami
30 June 1956			
VMF(AW)-542	17 F3D-2, 10 F3D-2M	WH	El Toro
VMF(AW)-513	23 F3D-2	WF	NAS Atsugi
VMF(AW)-531	24 F3D-2	LT	Cherry Point
VMFT(AW)-20	12 F3D-2	LP	Cherry Point
H & HS	2 F3D-2Q	AZ	El Toro
MARS-37	1 F3D-2	QF	El Toro
30 June 1957			
VMF (AW)-542	16 F3D-2, 7 F3D-2M	WH	El Toro
VMF(AW)-513	18 F3D-2, 4 F3D-2M	WF	NAS Atsugi
VMF (AW) 531	21 F3D-2	EC	NAS Oceana
VMCJ-3	3 F3D-2	BP	Cherry Point
VMFT(AW)-20	5 F3D-2,8 F3D-2T2	BP	Cherry Point
H & MS-24	3 F3D-2	EW	Cherry Point

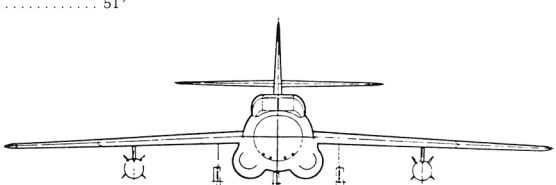
F3D-3

The F3D-3 proposal came about as a logical attempt to increase the Skynights effectiveness through the application of swept wing and tail surfaces. Although an initial order for 102 aircraft was received, the contract was soon cancelled as newer and more promising designs were being developed. One need only compare the drawings on these pages with photos of Douglas A-3 Skywarriors to see that the wing and tail section research for the F3D-3 was not wasted.

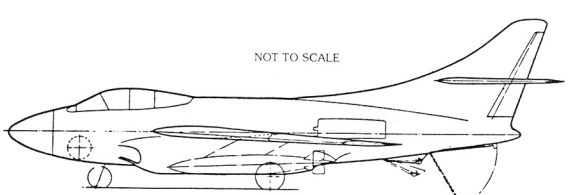


DIMENSIONS

Height	15′2″
Height Wing Folded	16′3″
Span	50′
Span Folded	32′9″
Length	51′



NOT TO SCALE



F3-D3 PERFORMANCE SUMMARY (2 Westinghouse J-46-WE-4 Engines)

		NIGHT FIGHTER (Normal Internal Fuel)	NIGHT FIGHTER (Full Internal Fuel)	NIGHT FIGHTER (Full Internal Fuel) Plus 2-150 gal. Drop Tanks
Take-Off Weight	lbs.	25,550	26,735	28-885
Fuel Internal/External (A)	lbs.	6045/0	7230/0	7230/1800
Bombs		None	None	None
Wing Loading	lbs/sq. ft. lbs/	57.8	60.5	65.4
Stall Speed — Power off	kn	103.5	105.9	110.1
Stall Speed — Power off — No Fuel	kn	90.5	90.5	91.3
Stall Speed — Power on	kn	100.3	102.6	106.7
Maximum Speed/Alt (B)	kn/ft	529/14000	529/14000	511/17000
Take-Off Distance, Deck — Calm	ft	1730	1930	2330
Take-Off Distance, Deck 25 kn. Wind	ft	1010	1150	1430
Catapult Take-Off Speed (C)	ft	107.6	110.3	115.2
Rate on Climb — Sea Level (B)	ft/min	4670	4430	3850
Service Ceiling (B)	ft	43,300	42,400	39,800
Time-to-climb 20,000 ft. (B)	min	5.3	5.7	6.5
Time-to-climb 30,000 ft. (B)	min	9.6	10.3	12.2
Combat Range/V av ft.	n.mi/kn	998/436	1233/442	1476/433
Combat Radius/V av ft. (F-5)	n.mi/kn	347/442	468/451	600/443
Combat Endurance at 35,000 ft./V av	hrs/kn	2.3/291	2.9/301	3.8/306

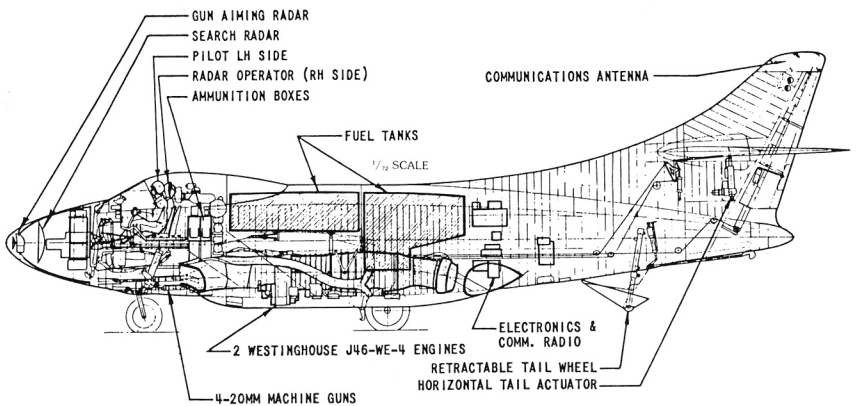
NIGHT FIGHTER (Full Internal Fuel)

Loading Condition		Combat	Combat
Gross weight	lbs	23,843	23,843
Engine Power		Military	Normal
Fuel	lbs	4338	4338
Bombs/Tanks		None/None	None/None
Max. Speed at Sea Level	kn	544	505
Max. Speed/Alt.	kn	547/4000	530/14000
Combat Speed/Alt.	kn/ft	510/35000	—
Rate of Climb SL	ft/min	6330	5070
Ceiling for 500 fpm R/C	ft	44,700	—
Time-to-climb/Alt.	min/ft	4.0/2000	—

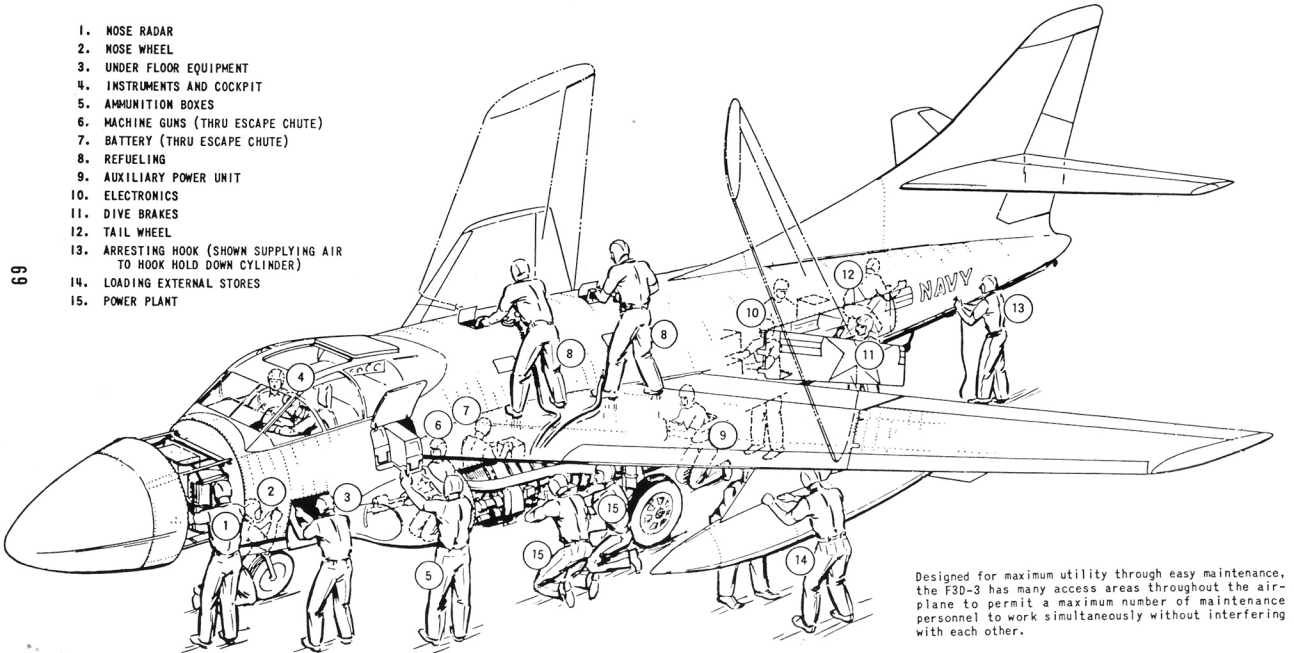
(A) External drop tanks are Douglas Aircraft stores.

(B) Normal Thrust.

(C) The F3D-3 is designed to operate from the H4-1 and H-8 catapults in a 25 knot wind at a design gross weight of 25,550 lbs.



1. NOSE RADAR
2. NOSE WHEEL
3. UNDER FLOOR EQUIPMENT
4. INSTRUMENTS AND COCKPIT
5. AMMUNITION BOXES
6. MACHINE GUNS (THRU ESCAPE CHUTE)
7. BATTERY (THRU ESCAPE CHUTE)
8. REFUELING
9. AUXILIARY POWER UNIT
10. ELECTRONICS
11. DIVE BRAKES
12. TAIL WHEEL
13. ARRESTING HOOK (SHOWN SUPPLYING AIR TO HOOK HOLD DOWN CYLINDER)
14. LOADING EXTERNAL STORES
15. POWER PLANT



Designed for maximum utility through easy maintenance, the F3D-3 has many access areas throughout the airplane to permit a maximum number of maintenance personnel to work simultaneously without interfering with each other.

EXTERNAL STORES DEVELOPED FOR THE F3D-3

High Speed external store units similar to Aero X-1A fuel tanks can be used in conjunction with Aero X-61A bomb racks to increase the versatility of the F3D-3 airplane. While most of the arrangements illustrated herein are based upon the standard 150 gallon, 20 cubic foot shape, several arrangements show a 300 gallon, 40 cubic foot container shape developed as a fuel tank for the A2D airplane. These external loadings are based upon the philosophy that an airplane must be called upon to perform many missions during its life, but that its basic mission cannot be comprised for secondary missions.

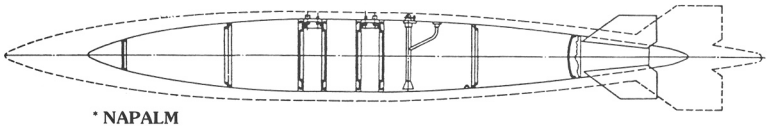
* Designed, developed and tested.

**Although not completely developed, these stores can be designed using the standard Aero X-1A shape.

* FUEL TANKS

Two 150 gallon fuel tanks are recommended as the most suitable for this airplane. For extremely long range operations 300 gallon tanks could be carried.

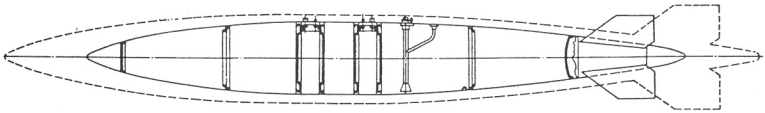
Weight Filled: 150 gal. size . . . . . 1020 lbs. each
300 gal. size . . . . . 2005 lbs. each



* NAPALM

Two 150 gallon Napalm bombs may be carried in the basic 20 cu. ft. external store shape, or two 300 gallon Napalm bombs in the 40 cu. ft. shape.

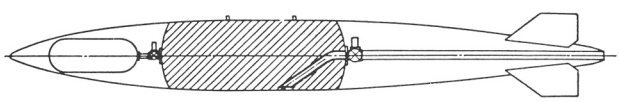
Weight Filled: 150 gal. size . . . . . 1080 lbs. each
300 gal. size . . . . . 2125 lbs. each



* * CHEMICAL TANKS

75 gallons of chemicals can be carried in each of two external tanks. The arrangement of the tanks on the airplane and the arrangement of the airplane itself are such that external swing spouts are not necessary to prevent contamination of the airplane.

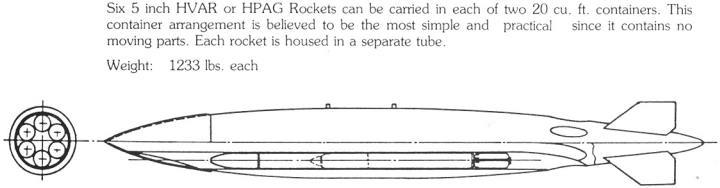
Weight Filled: 150 gal. size . . . . . 1390 lbs. each



* * 5″ ROCKETS

Six 5 inch HVAR or HPAG Rockets can be carried in each of two 20 cu. ft. containers. This container arrangement is believed to be the most simple and practical since it contains no moving parts. Each rocket is housed in a separate tube.

Weight: 1233 lbs. each

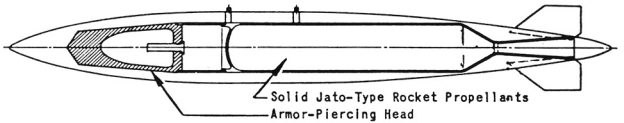


* * ROCKET BOMB

By installation of a JATO type solid propellant rocket motor and an armor piercing bomb head, the 20 cu. ft. external store shape can be converted into a very effective armor-piercing rocket bomb. This arrangement would weigh approximately 2000 pounds and would have a penetrating velocity of over 2000 feet per second.

This form of weapon is considered particularly effective for purposes of attack against ships or concentrated targets due to its forward firing nature and its high penetrating velocity. It is also ideally suited for toss bomb aiming equipment.

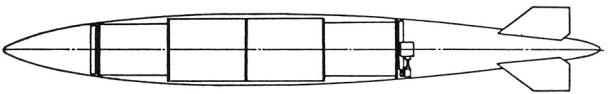
Weight: VT Fuse Arrangement . . 2000 lbs. each
Armor Piercing . . . . . 1900 lbs. each



* * INCENDIARY CLUSTERS

Housed within the same container that carries small fragmentation bombs, 1150 pounds of incendiary bombs can be carried in each of two stores of the basic 20 cu. ft. shape.

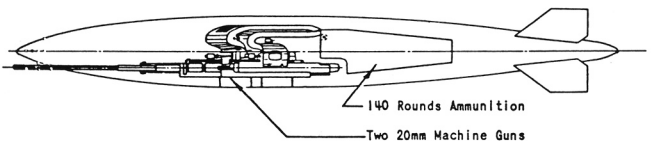
Weight: 1295 lbs. each



* * 20 MM MACHINE GUNS

Two Mk 12 Mod O 20mm machine guns with 140 rounds of ammunition each can be housed in one 20 cu. ft. streamlined shape. Thus, for missions requiring heavy gun fire, the firepower of the F3D can be increased from 4 to 8 guns.

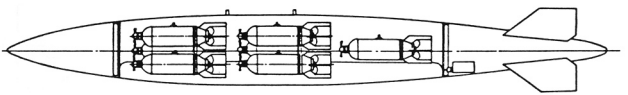
Weight: 660 lbs. each



* * FRAGMENTATION BOMBS

Eleven M82 personnel or fragmentation bombs weighing a total of 990 pounds can be carried in each of two containers of the basic 20 cu. ft. size. These containers can be identical with those used for carrying incendiary bombs.

Weight: 1135 lbs. each

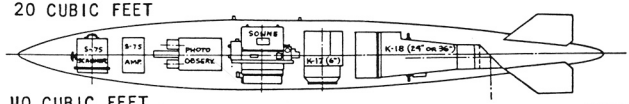


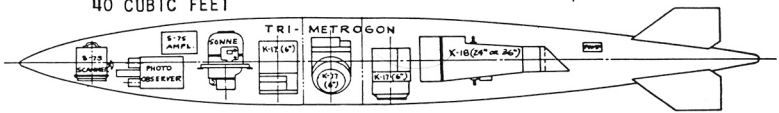
* * PHOTOGRAPHY

Photographic equipment in almost any desired arrangement can be carried in either the basic 20 cu. ft. external store shape or in the larger 40 cu. ft. shape.

For most damage assessment and reconnaissance operations the smaller store is believed to be most satisfactory. It could be arranged as shown above to carry and S-7S Sonne camera and associated equipment, a K 17 wide angle camera and a K 18 long focal length camera. At the same time a second store could be carried with a Tri-Metrogon arrangement if it is desired. The 40 cu. ft. shape could be arranged to carry both Tri-Metrogon, Sonne, and K.18 long focal length cameras.

Weight: 40 cu. ft. size . . . . . 743 lbs.
20 cu. ft. size — Tri-Metrogon . . . . . 450 lbs.
20 cu. ft. size — Alternate 1 . . . . . 490 lbs.

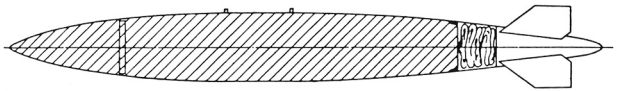




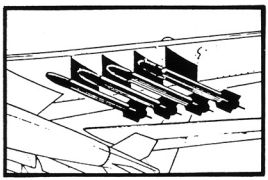
* * EQUIPMENT CONTAINER

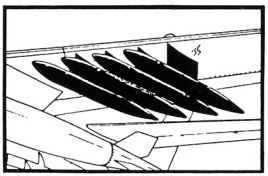
By means of a parchute, 20 cu. ft. of supplies stored in one of the small streamlined shapes can be lowered for delivery to advance bases. Forty cu. ft. would be available in the larger store if desired.

Weight: 150 gal. size . . . . . 135 lbs. . . Total Weight: 1000 lbs.
300 gal. size . . . . . 225 lbs. . . Total Weight: 2000 lbs.



OUTER-WING ARMAMENT





5 INCH ROCKETS

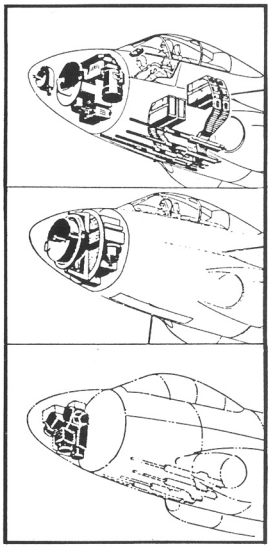
A standard fighter complement of eight outer wing Aero 14 rocket racks (four per side) can easily be incorporated in the outer wing for the purpose of carrying 5 inch HVAR or HPAG Rockets. This loading configuration is particularly beneficial for attacking motorized ground forces, airfields, ships and ground installations.

Weight: HVAR Rocket . . . . . 140 lbs. each
HPAG Rocket . . . . . 125 lbs. each

2¾ INCH ROCKETS

The Douglas Aircraft Company has designed, developed and tested High Speed containers that carry six 2¾ inch rockets. By carrying eight (four per side) of these containers on Aero 14 bomb racks, it is possible for the F3D-3 to carry 48 2¾ inch rockets on the outer wings. This rocket size is especially well-suited for attack against large bombers or other aircraft. It is also well-suited for attack against mechanized ground forces. The rockets can be fired using the APG radar system by means of a relatively simple change in the computer. The present AN/APQ-35 radar system is so designed that computers for guns and rockets can be easily interchanged.

Weight of each store including rockets . . . . 155 lbs.



ALTERNATE DEMOUNTABLE NOSE

A quickly removable nose has been incorporated in the present basic night fighter airplane. This design permits the removal of the entire nose equipment installation through use of four bolts and "quick-disconnect" type electric fittings. A standard torpedo handling truck with a simple adapter can be used to handle the demountable nose installation. Studies have been made of alternate installations for use with photographic or target plotting equipment. These interchangeable noses permit conversion of the airplane for specific missions without compromising performance by carrying unnecessary equipment. The individual units can be serviced under controlled conditions away from the airplane but installed in the demountable nose sections.

NIGHT FIGHTER NOSE

The F3D-3 demountable fighter nose accommodates the AN/APQ-43 radar system including AN/APS-21 search, and AN/APG-26 gun-aiming radars. This nose is included in the basic F3D-3 night fighter.

SPARROW NOSE

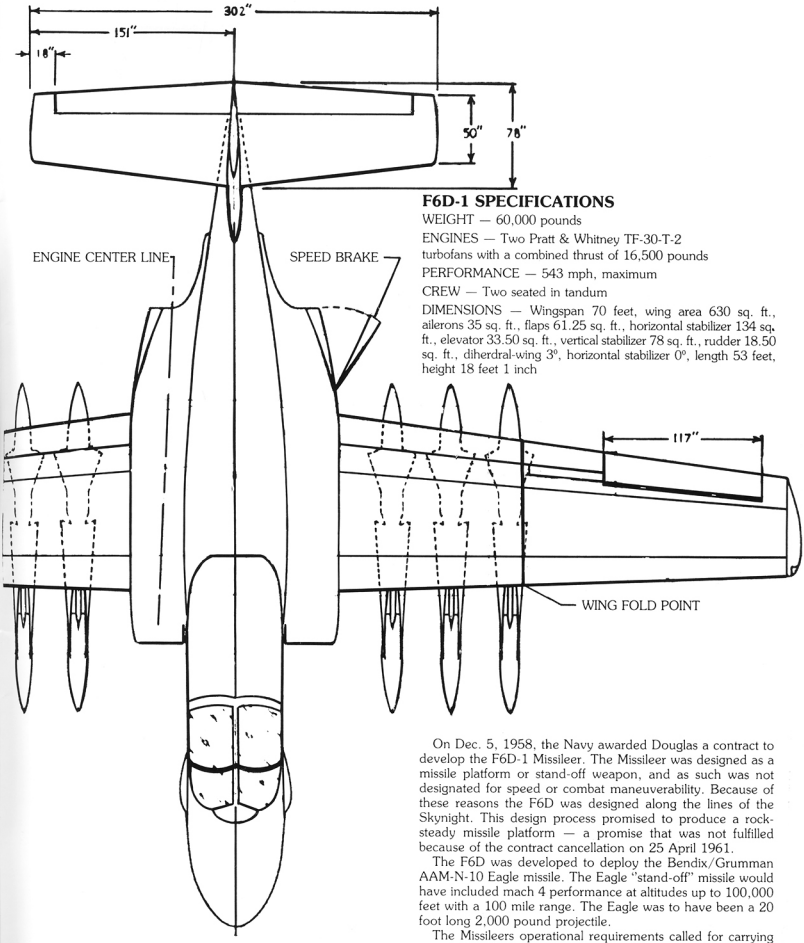
The AN/APQ-36 radar equipment required for use with Sparrow missiles has been installed in a demountable nose that is interchangeable with the basic night fighter nose.

PHOTOGRAPHIC NOSE

The location of the demountable nose of the F3D-3 airplane, well clear of all interference from the airplane structure, permits an ideal installation for photographic equipment. A K-17 6_{0} (Tri-Metrogon) and a K-18 24″ or 36″ camera can be conveniently installed. A Sonne (strip camera) can be installed by removing the vertical K-17 6″ unit.

F6D-1 MISSILEER

Artist impression of F6D-1 Missileer. Douglas photo.



F6D-1 SPECIFICATIONS

WEIGHT — 60,000 pounds

ENGINES — Two Pratt & Whitney TF-30-T-2 turbofans with a combined thrust of 16,500 pounds

PERFORMANCE — 543 mph, maximum

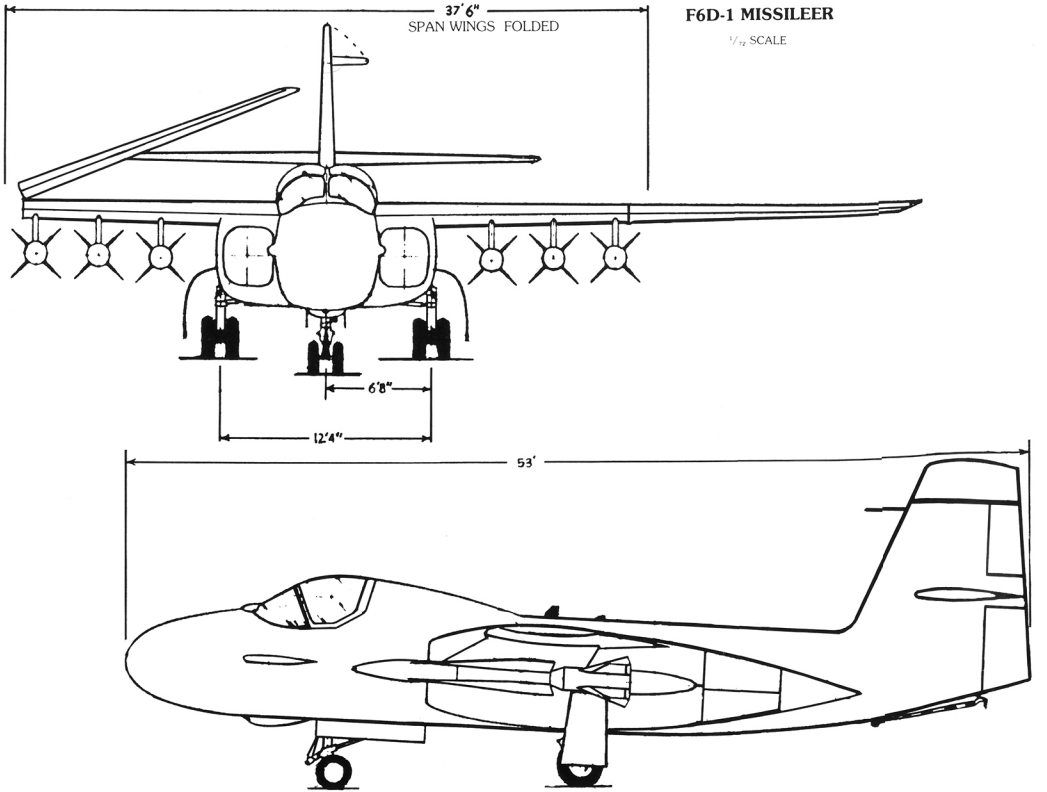
CREW — Two seated in tandum

DIMENSIONS — Wingspan 70 feet, wing area 630 sq. ft., ailerons 35 sq. ft., flaps 61.25 sq. ft., horizontal stabilizer 134 sq. ft., elevator 33.50 sq. ft., vertical stabilizer 78 sq. ft., rudder 18.50 sq. ft., diherdral-wing 3°, horizontal stabilizer 0°, length 53 feet, height 18 feet 1 inch

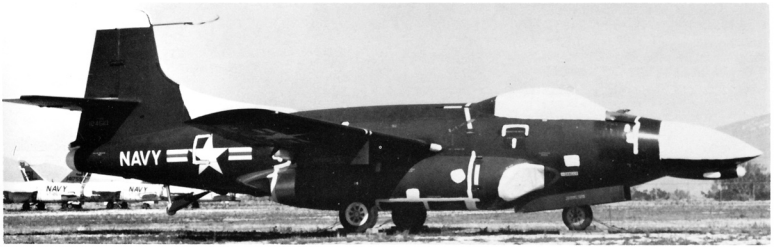
On Dec. 5, 1958, the Navy awarded Douglas a contract to develop the F6D-1 Missileer. The Missileer was designed as a missile platform or stand-off weapon, and as such was not designated for speed or combat maneuverability. Because of these reasons the F6D was designed along the lines of the Skynight. This design process promised to produce a rock-steady missile platform — a promise that was not fulfilled because of the contract cancellation on 25 April 1961.

The F6D was developed to deploy the Bendix/Grumman AAM-N-10 Eagle missile. The Eagle "stand-off" missile would have included mach 4 performance at altitudes up to 100,000 feet with a 100 mile range. The Eagle was to have been a 20 foot long 2,000 pound projectile.

The Missileers operational requirements called for carrying six Eagles at a "stand-off" radius of 150 miles from its carrier. Additionally the F6D was required to be capable of loitering at an altitude of 35,000 feet for ten hours.

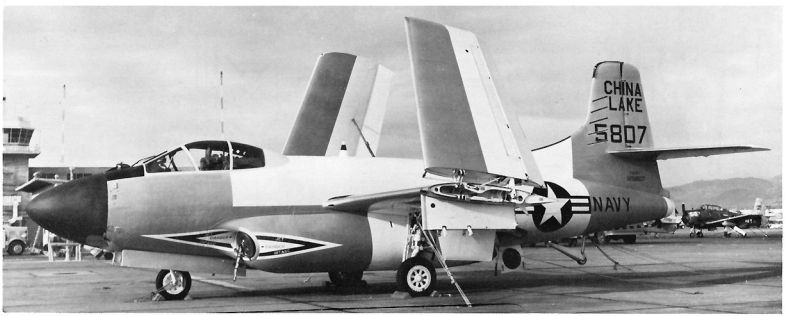

37'6"
SPAN WINGS FOLDED
F6D-1 MISSILEER
1/72 SCALE
6'8"
12'4"
53'

PHOTOS: TOP — F3D-2, 124600, in 1960. Aircraft is on loan to Westinghouse, note logo on nose. Aircraft blue overall with red nose marking with white outline. Photo by Harry Gann. MIDDLE — F-10B, 124610, at MASDC in 1969. Note how F-4 nose has been fitted onto the Skynight. Photo by Harry Gann. BOTTOM — F3D-2, 124610, in standard Navy colors with modified nose radome, used by Westinghouse to develop the APQ-72 radar for the F4H-1. Photo via Picciani Aircraft Slides.



CHINA LAKE

The photos below show three Skynights used for ordnance test projects in the 1960s. TOP — 127074, in 1967 with unknown radar installation. The next two aircraft are still in use today by Raytheon. MIDDLE — 125807, F3D-2T2, on 17 Nov., 1961. BOTTOM — 124630, TF-10B, in 1967 with A4 Skyhawk nose graft. All aircraft are white and day-glo. Photos by Harry Gann.



PHOTOS: TOP — F3D-2M, 127083, from China Lake, retrofitted with cannons and standard nose. Grey and white with red fin tip, red rear lower fuselage and wing surfaces, and red flash under anti-glare panel.

NADU

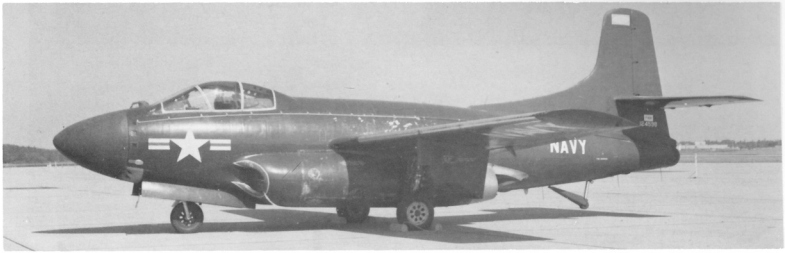
AT LEFT — F3D-2T2, 124611, while still operational with Naval Air Development Unit. Photo by Jim Burridge at NAS South Weymouth, 23 April 1960. BELOW — Same aircraft at MASDC, date unknown, photo by Harry Gann. Fuel tank trim red with white stars.

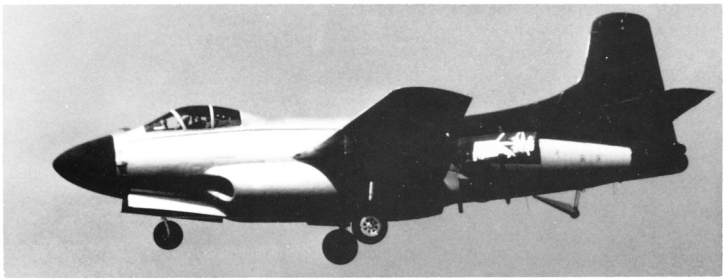
PHOTOS: TOP — MF-10B, 127043, bailed to Raytheon, in gray and white paint with day-glo red trim, in May 1961. Photo by Gordon Blake via Picciani aircraft slides. MIDDLE — F3D-2, 12 085, assigned to NAOTS Chincqteage in blue scheme with white outer-wing undersurfaces, 1956. Photo by R. Besecker. BOTTOM — F3D-2, 124642, Navy Parachute Facility, El Centro. July 1960 photo by Harry Gann. Tail colors black line, yellow stripe, white line black stripe with white lettering.

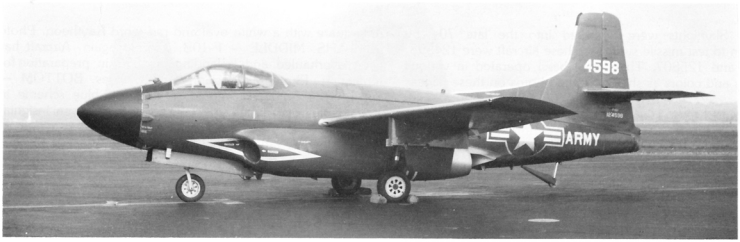
RAYTHEON SKYNIGHTS

Three Skynights were operated into the late 70s' by Raytheon to test missile systems. These aircraft were 124598, 124630 and 125807. They have been operated in various markings and colors as shown by the photos on these pages.

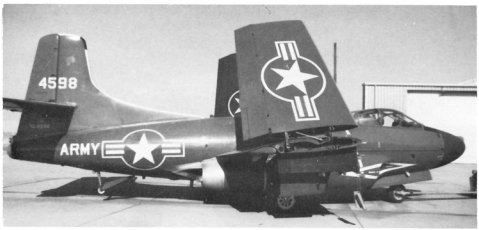
PHOTOS BELOW: TOP — F-10B, 124598, as seen in June 1967. Aircraft is blue with flat black radome, natural metal canopy frame and gunports, red intake lip with white border, blue nose wheel and white main wheels. Label on top of fin is a red square with a white oval and red word Raytheon. Photo from AHS. MIDDLE — F-10B, 124598 again. Aircraft has been overhauled and is landing in 1972 in preparation for repainting. Photo by Picciani Aircraft Slides. BOTTOM — F-10B, 124598 again, repainted in glossy blue scheme in 1975. Note how a white stripe surrounds the national insignia. Intake chevrons are white as are the fuselage step markings. Note flat black radome, anti-glare panel and fuselage walk area. Photo by Picciani Aircraft Slides.







Photos on this page show F-10B, 124598, in 1978. Markings are the same as the photo in 1975, except for the word NAVY has been changed to ARMY in the 1978 photos. Photos by J. Vincent via Menard.

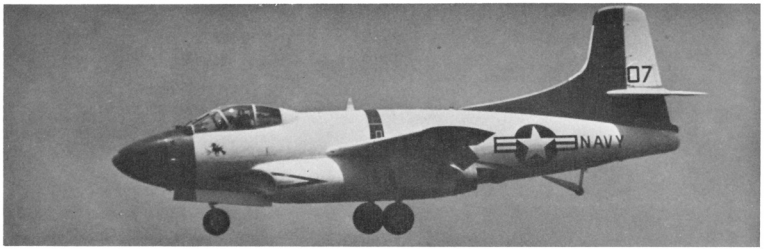


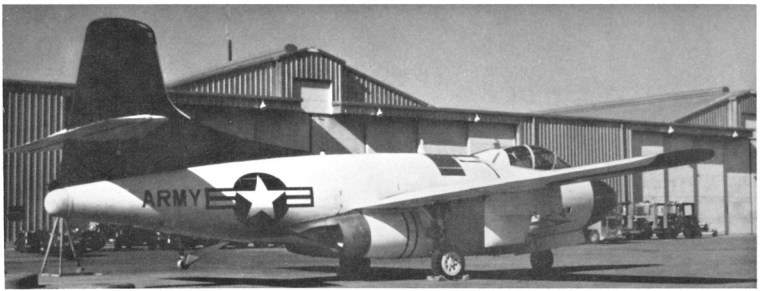
Picciani Aircraft Slides
434 Arbutus Ave.
Horsham, PA 19044

PHOTOS BELOW: Two of the last flying Skynights, used for electronics testing by Raytheon. *Top* — 125807, landing at Laurence G. Hanscom field, Ma., July 1973, photo by Frank Klaiss via Picciani Aircraft Slides. *Middle* — 124630 seen with Navy on tail, photo from Lionel Paul collection. *Bottom* — 124630 seen in 1978 with Army on tail, photo by Picciani Aircraft Slides. Aircraft on all three photos overall color white with red tail, nose and wing markings. Darker red stripe on tail with black stylized road runner. Black duck with yellow lighting bolts on left side of nose only. Flat black radome and anti-glare panel. Dark grey fuselage-walks. Yellow rescue arrows. Red intake chevrons and turbine warning stripes. Landing gear and wheels white.

BACK COVER

Color plates top to bottom: F3D-2, 124620, VMF(N)-513, Korea 1952. F3D-1, 123767, VMF-542, 1951. F3D-2T2, 127069, Fleet All Weather Training Unit Atlantic, post 1958. F3D-2T2, 124597, VF-121, 1961. Well worn F3D-2Q, 127034, VMCJ-2, 1964, note how sun has bleached radome to brown.





WF
15
WH
6
MARINES
VMF-542
HG
13
NAVY
NJ
197
NAVY
VF-121
CY
7034
19
MARINES